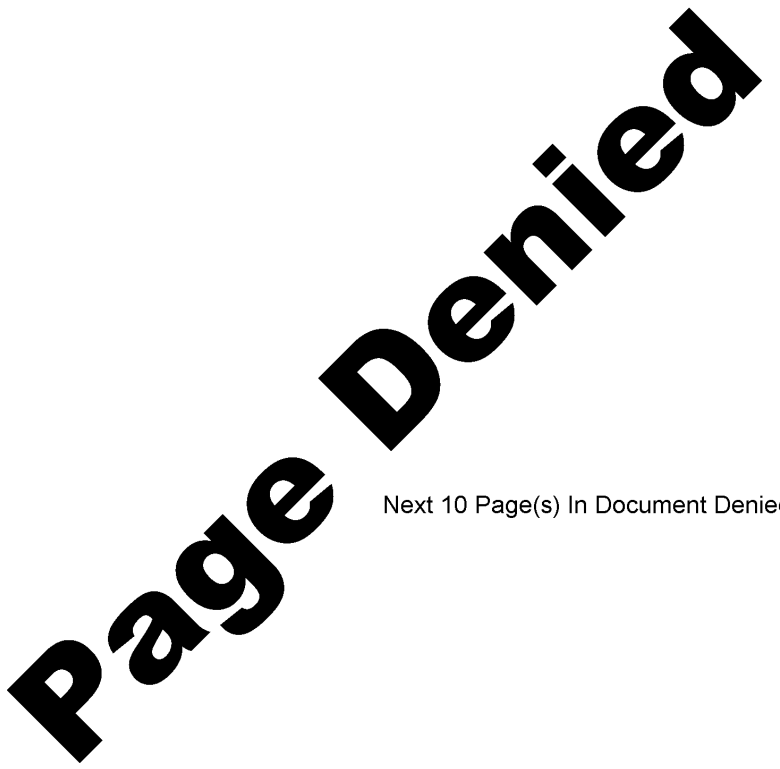

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June 1964

EVALUATIONS OF SOVIET SURFACE-TO-SURFACE MISSILE DEPLOYMENT

13TH REVISION

A Report of the Deployment Working Group

of the

Guided Missiles and Astronautics Intelligence Committee

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The Guided Missiles and Astronautics Intelligence Committee (GMAIC) wishes to express its appreciation to the National Photographic Interpretation Center for its assistance in the editing, illustration, and publication of this report.

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CONTENTS

ILLUSTRATIONS

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ILLUSTRATIONS CONTINUED

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PREFACE

This report, published bimonthly by the GMAIC Deployment Working Group (DWG), provides a comprehensive, ready-reference listing of all ICBM, IRBM, and MRBM deployment locations, types of site configurations, photographic references, estimated construction and operational status, and other evaluations by the DWG. These data constitute the majority view of the DWG membership, and may not correspond precisely to individual assessments by each member. Additional data may be added to future revisions.

Dissemination of the report was previously limited to holders of the DWG report, Soviet Surface-to-Surface Missile Deployment. Because the information contained herein is both supplemental and self-sustaining, distribution will no longer be limited to holders of the above report.

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INTRODUCTION

This report is the thirteenth revision of Evaluations of Soviet Surface-to-Surface Missile Deployment prepared by the Deployment Working Group of the Guided Missiles and Astronautics Intelligence Committee. The twelfth revision, dated 1 April 1964, and disseminated under control number DIA-02082 64 KTC, can be destroyed in accordance with existing instructions for handling COMINT and TALENT-KEYHOLE materials.

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and continuing analysis of previous missions and other sources have provided additional information on the Soviet ballistic missile deployment program. The new data are reflected in Table 1 and in the estimated operational status shown in Tables 2 and 3. Cut-off date for information contained in this report is 20 May 1964.

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The quality and resolution of the photography provided by the KH-7 system has furnished a wealth of information, and more thorough evaluation will require a considerable period of time. Assessments made in this revision, based on these two missions, represent a rapid initial analysis; more detailed evaluations in many of the areas covered will be disseminated in future revisions.

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SOVIET ICBM DEPLOYMENT

The lack of KH-4 coverage of the USSR since our last revision has precluded further analysis of what appears to be a slowdown or cessation in Soviet deployment of both hard and soft sites of known configuration. In the twelfth revision we pointed out that usable photographic coverage of 12 of the 18 ICBM complexes since December 1963 revealed that no new soft site construction had been initiated at these complexes since September 1963. Further analysis reveals that no new hard sites have been begun at these complexes for a similar period of time. The total number of confirmed and probable deployed sites remains at 105 (238 launchers). Additionally, one site is carried in the possible category. Of the 238 launchers, 188 are considered to be operational. See Figure 1 for locations of deployed ICBM complexes.

The ICBM launch sites have been designated by type, as shown and explained in Figure 2. have added significantly to our knowledge of ICBM site facilities. Figure 2 has been updated accordingly. No coverage was obtained on Type I and Type IIA sites on these missions.

SOFT SITES

Type IIB Sites

Coverage of Verkhnyaya Salda Launch Site E (5) and Yurya Launch Site F (7) and Plesetsk Launch Site B (5) not only provides functional identification of site facilities, but also points up apparent differences between sites of this type (Figures 3, 4, and 5). At the Verkhnyaya Salda and Yurya sites, for example, probable fuel and oxidizer vehicles are parked in the open near possible storage tanks. At Plesetsk, these vehicles and tanks are not apparent, and two additional structures, probably housing these vehicles, are located at opposite ends of the center road. An artist's concept of a Type IIB site is shown in Figure 6.

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coverage of Yurya Launch Site D (4), also a Type IIB site, reveals a probable exercise underway, with an erected SS-7 missile and associated equipment on one of the launch pads (Figure 7).

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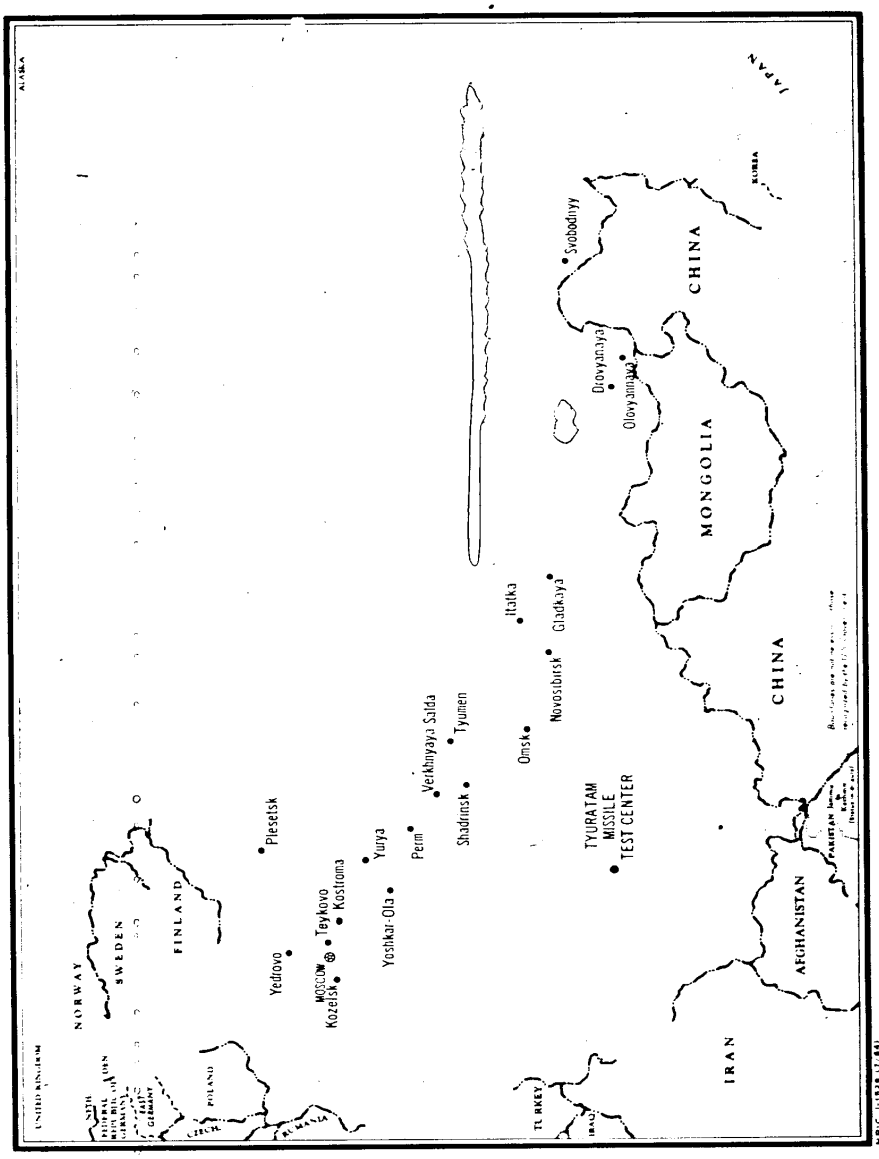

FIGURE 1. DEPLOYMENT OF SOVIET ICBM COMPLEXES.

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Type IID Sites

Good coverage of Type IID sites was obtained with Yurya Launch Site I (11) a typical example (Figure 8). The most significant aspect of this coverage was the snow-covered canted buildings located inboard of each pad. This photography reveals that these buildings have personnel entrances only, and indicates that the roofs are vented. This information and the apparent absence of fueling oxidizer vehicles and/or facilities at Type IID sites strongly indicate that the canted buildings serve a fueling function. We believe, therefore, that the IID sites have an integral fueling system while the earlier Type IIB and IIA versions utilize a mobile system. An artist's concept of a Type IID site is shown in Figure 9.

Type IIC Sites

provide only non-stereo coverage of Type IIC sites. At the Kozelsk Complex, photography of Launch Site A (3) revealed that four tracks, each apparently consisting of two rails, emerge from each ready building and merge into a single track before entering the pad area (Figure 10). The single track continues up to the ring on the pad, but it is not clear whether it actually enters or crosses the ring itself. An artist's concept of a Type IIC site is shown in Figure 11.

HARD SITES

provide a considerable amount of information on hard sites, particularly the IIIA type. Continuing evaluation should enable a more accurate assessment of the physical vulnerability of these sites, as well as assist in determining their mode of operation; i.e., fly-out or elevate-to-launch. The results of these missions strengthen our previous assessment of three launch silos at hard ICBM sites.

Type IIIA Sites

furnish good coverage on about half of the deployed Type IIIA sites. Sites at Drovyanaya, Verkhnyaya Salda, and Plesetsk are representative of the coverage obtained. Drovyanaya Launch Site E (5) is in a midstage of construction, and the photography is of excellent quality (Figure 12). Stereo coverage was not obtained, however, limiting detailed analysis. At Verkhnyaya Salda Launch Site F (7), many details not previously discernible on photography are apparent (Figure 12). The center silo cover has been moved back to the right (as seen from the control bunker). We are investigating the possibility of venting and other evidence indicative of a fly-out capability. It is interesting to note in this respect that the size of the silo cover is far in excess of that required to provide protection for the launch tube. Photography of Plesetsk Launch Site C (6) adds further details of site facilities (Figure 13). An artist's concepts of a Type IIIA site at the mid-stage of construction and in the completed state are shown in Figures 14 and 15.

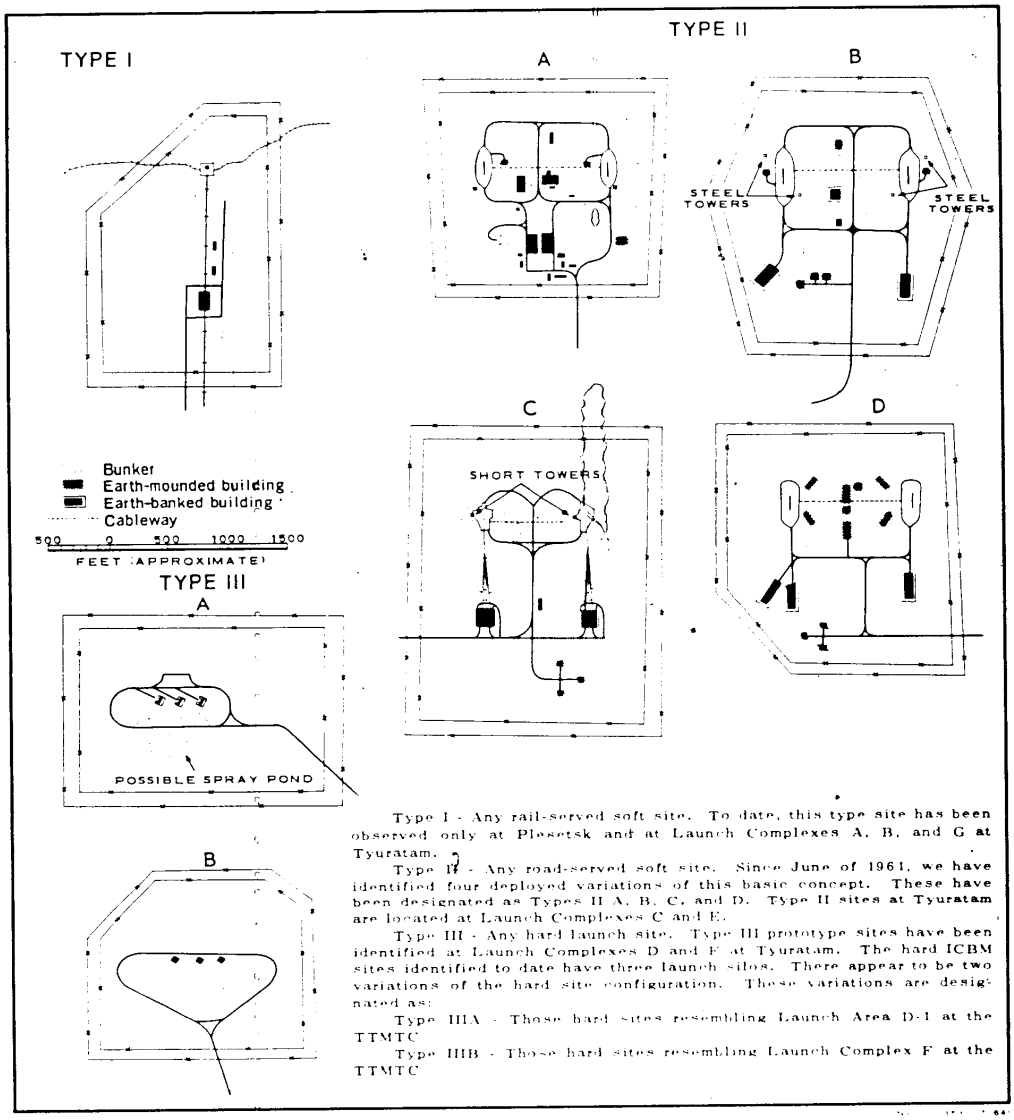
Type IIIB Sites

Coverage of Omsk Launch Site A (1) reveals significant differences between the silo covers at Type IIIA and IIIB sites. At Omsk A (1), the easternmost silo cover has been moved back to the left (as viewed from the control bunker). The cover is square, with the top having the appearance of a dome or oblated cone. An artist's concept of a completed Type IIIB site is shown in Figure 16.

TYURATAM MISSILE TEST CENTER

Test Range Activities

Soviet ICBM activity since our last report was highlighted by firings of what appears to be a new-type missile. The firing resulted in an early inflight failure, while the launch was apparently conducted successfully to the Kamchatka impact area. Another highlight was the firing of an SS-7 missile on from an operational site (probably at the Verkhnyaya Salda



Type I - Any rail-served soft site. To date, this type site has been observed only at Plesetsk and at Launch Complexes A, B, and G at Tyuratam.

Type II - Any road-served soft site. Since June of 1961, we have identified four deployed variations of this basic concept. These have been designated as Types II A, B, C, and D. Type II sites at Tyuratam are located at Launch Complexes C and E.

Type III - Any hard launch site. Type III prototype sites have been identified at Launch Complexes D and F at Tyuratam. The hard ICBM sites identified to date have three launch silos. There appear to be two variations of the hard site configuration. These variations are designated as:

Type IIIA - Those hard sites resembling Launch Area D-1 at the TTMTC

Type IIIB - Those hard sites resembling Launch Complex F at the TTMTC

FIGURE 2. TYPICAL CONFIGURATIONS OF ICBM LAUNCH SITES, AND EXPLANATION OF TYPES.

Complex) to Kamchatka. This was the second such firing from an operational site. The first instance involved the successful launch of an unidentified-type ICBM from the Plesetsk Complex

Other range activity included a successful SS-7 operation an operation of unknown type and results a cancellation , and the successful launch of an SS-8 to Kamchatka Soviet failure to utilize Flim Flam facilities indicates that the SS-8 firing probably represented an operational training exercise.

Test Range Facilities

covered parts of the Tyuratam Missile Test Center, but it did not add significantly to our knowledge of the Soviet ICBM test program. We have reviewed previous coverages of the rangehead facilities in an attempt to identify new launch areas. Two suspect areas were identified and examined in detail.

The first is an installation located between Launch Complexes A (1) and B (2). This area (Figure 17) was first observed (April 1963), when only the rail and road were identified. It currently consists of a fenced area 2,500 by 1,900 feet, similar in configuration (but not in size) to Launch Complex G2 (11). The long axis is oriented north-south. There is an indistinct shallow excavation, approximately 210 by 125 feet, in the center of the fenced area. A building, approximately 75 by 20 feet, is visible adjacent to the excavation.

The second area examined is located west of Launch Complex G and north of the complex main road (Figure 18). In April 1963 only the access road was visible. The area currently is fenced and contains one fairly large and one small building. Coverage of this installation has been poor and additional detail and mensuration cannot be determined.

There has been no sense of urgency associated with construction activity at either location. We cannot determine at this time whether or not either, or both, will have a launch function.

Our review of the Tyuratam facilities also included an examination of a triple-fenced area located at the terminus of a rail spur in the central support facility. The secured area contains a step-roofed building with four levels, and one bunker (Figure 19). We believe the evidence currently available is insufficient to postulate the function of this installation.

SS-9 ICBM

The missile referred to in our last revision as a modified SS-7 has been designated the SS-9 by the Guided Missiles and Astronautics Intelligence Committee. In the twelfth revision we pointed out the possible relationship between this new missile and Launch Complexes H (8) and D2 (9) at Tyuratam. No new evidence is available to further associate the SS-9 with either of these launch facilities, and several anomalies preclude a further assessment pending receipt of additional evidence. We have also reviewed the current deployment picture, in light of the apparent cessation or slowdown of SS-7 site construction, for clues indicative of possible deployment of the new system.

Review of the Type IIIA hard site construction program shows that a break in construction starts occurred during the period from July 1962 to April 1963. The reason for this halt is not readily apparent. A possibility exists that the 12 IIIA sites begun since April 1963 may represent initial deployment of the SS-9. These sites are:

Kostroma H (8)	Perm F (4)
Dvoyanaya E (5), F (6)	Shadrinsk C (3)
Gladkaya C (4), D (5), E (6)	Svobodnyy G (7)
Olovyannaya B (2), C (3)	Yurya K (10)

STRATEGIC ROCKET FORCES ICBM SITE COMMUNICATIONS LINKS

We have not been able to explain satisfactorily the reason for the limited number (10) of

probable Strategic Rocket Forces (SRF) high-frequency mainline communications links to areas of ICBM deployment. These do not approximate the number of ICBM complexes (18). One possible explanation ties the existence of SRF links with possible echelonment of the ICBM component of the SRF. If an ICBM site is in fact occupied by a battalion, then such complexes as Shadrinsk (3 sites), Itatka (3 sites), Tyumen (2 sites), Olovyannaya (3 sites), and Omsk (one, possibly two sites) may be only regimental-sized units. That SRF links may terminate at ICBM division, or higher, level is suggested by the limited number of such links. Based on the probable identification of the Plesetsk (8 sites) and Yurya (11 sites) complex commanders as major generals, it is likely that these and other complexes of comparable size are at the division level. Smaller complexes may be grouped together under a divisional headquarters. For ex-

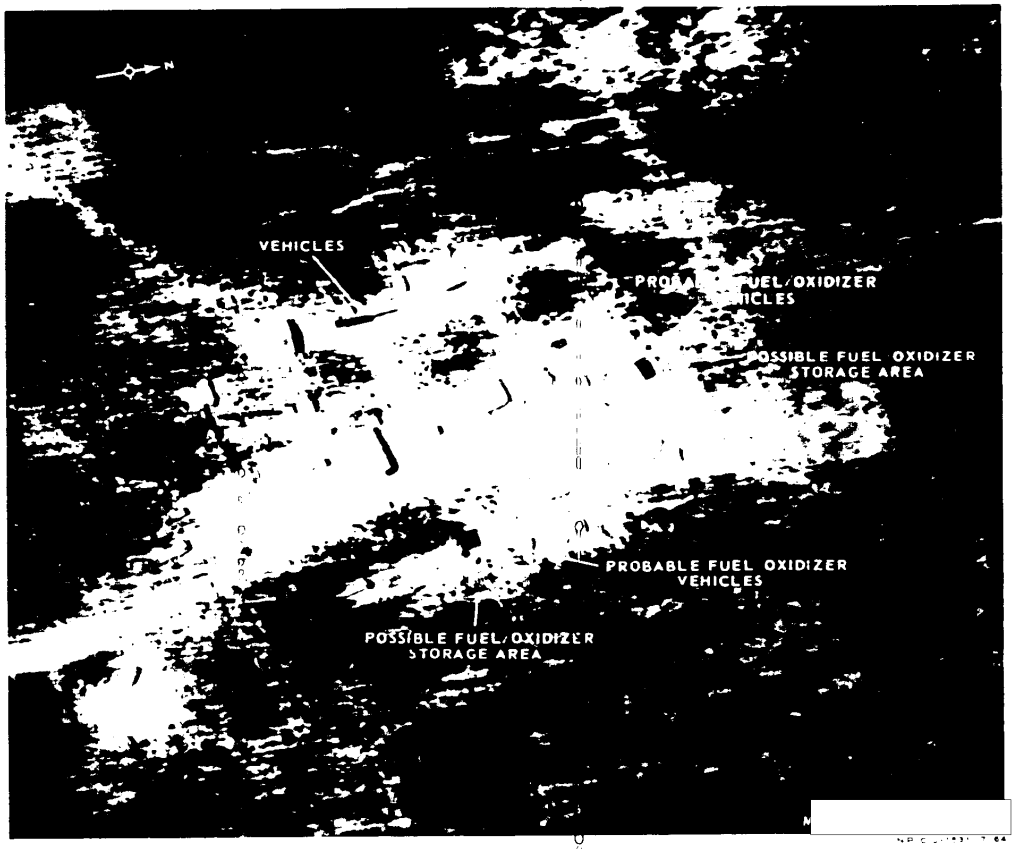


FIGURE 3. LAUNCH SITE E-5, VERKHNYAYA SALDA.

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ample, the Shadrinsk Complex (3 sites) may at present constitute a regiment and may be subordinate to a division headquarters at or near the Verkhnyaya Salda Complex. It is interesting to note that at least one high-frequency mainline link exists to each military district in which ICBM complexes are located. Thus in the Moscow Military District (MD) there are 29 sites and one SRF link; in the Northern MD, 8 sites and one link; Volga MD, 6 sites and one link; Ural MD, 29 sites and 3 links; Siberian MD, 16 sites and 2 links; Transbaikal, 9 sites and one link; and the Far East MD, 8 sites and one link. (The grouping of these links to military districts does not necessarily reflect Order of Battle alignments.) With the exception of the Moscow MD, where the relatively short distances may create special intercept problems, the proportion of links to sites appears consistent. Consideration of available evidence suggests that a correlation exists between the size of complexes, echelonment, and communications links. If this is so, we would expect that expansion of any one of the smaller complexes to division level by the Soviets would coincide with the establishment of an SRF mainline link to a nearby terminus.

VERKHNYAYA SALDA COMPLEX

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a high-frequency communications receiving antenna (FISHBONE) was observed at the auxiliary support facility of the Verkhnyaya Salda Complex (Figure 20). Examination of the antenna orientation indicates that it probably was established to receive communications from the Moscow area.

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YEDROVO COMPLEX

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The suspect launch site at Yedrovo Launch Site 1 (3) was covered but cloud cover precluded interpretation and we can make no further assessment of its function (See 12th Revision).

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FIGURE 4. LAUNCH SITE F (7) YURYA.

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FIGURE 5. LAUNCH SITE E (5), PLESETSK.

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FIGURE 6. ARTIST'S CONCEPT OF TYPE IIB ICBM LAUNCH SITE.

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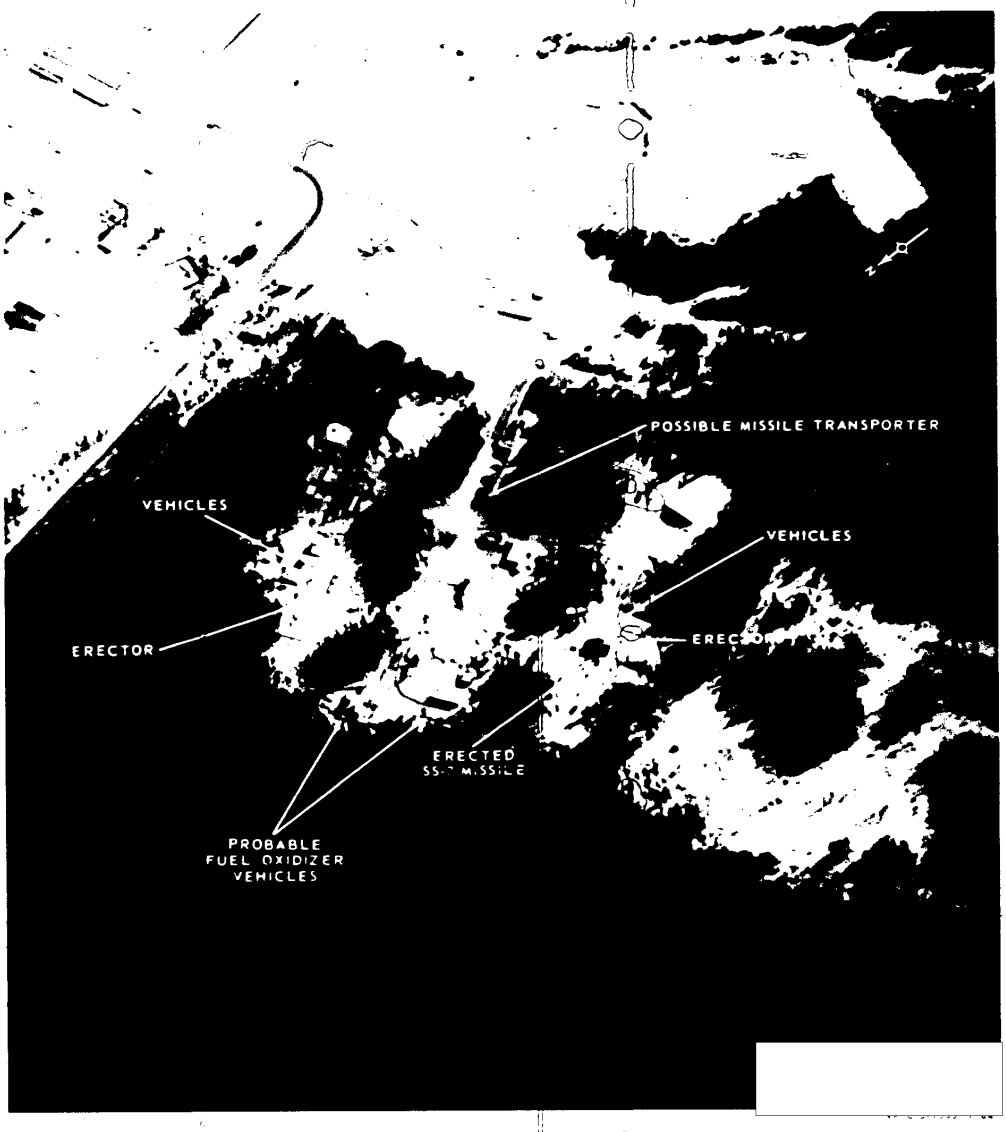

FIGURE 7. LAUNCH SITE D-41, YURYA.

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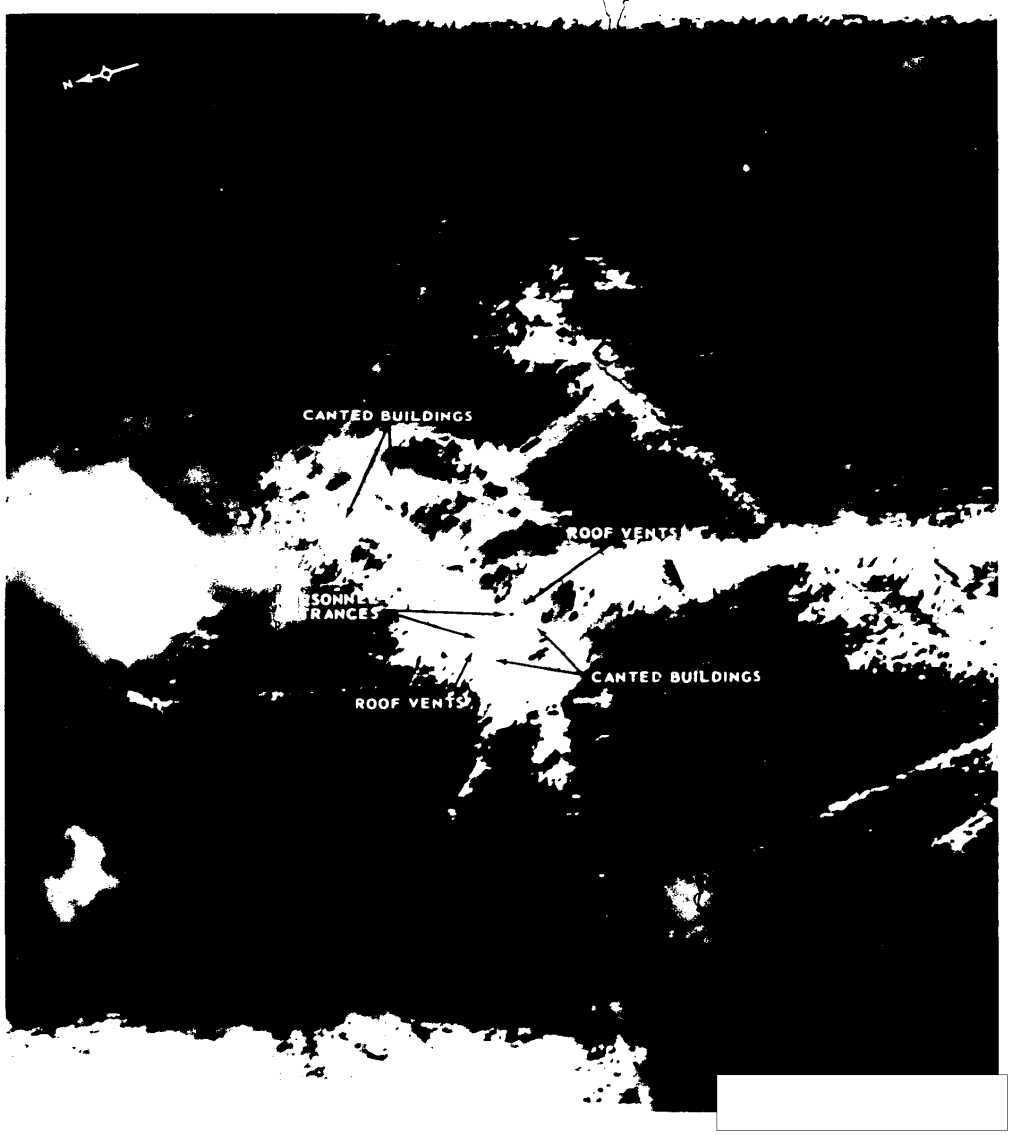

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FIGURE 8. LAUNCH SITE I [illegible], YURYA.

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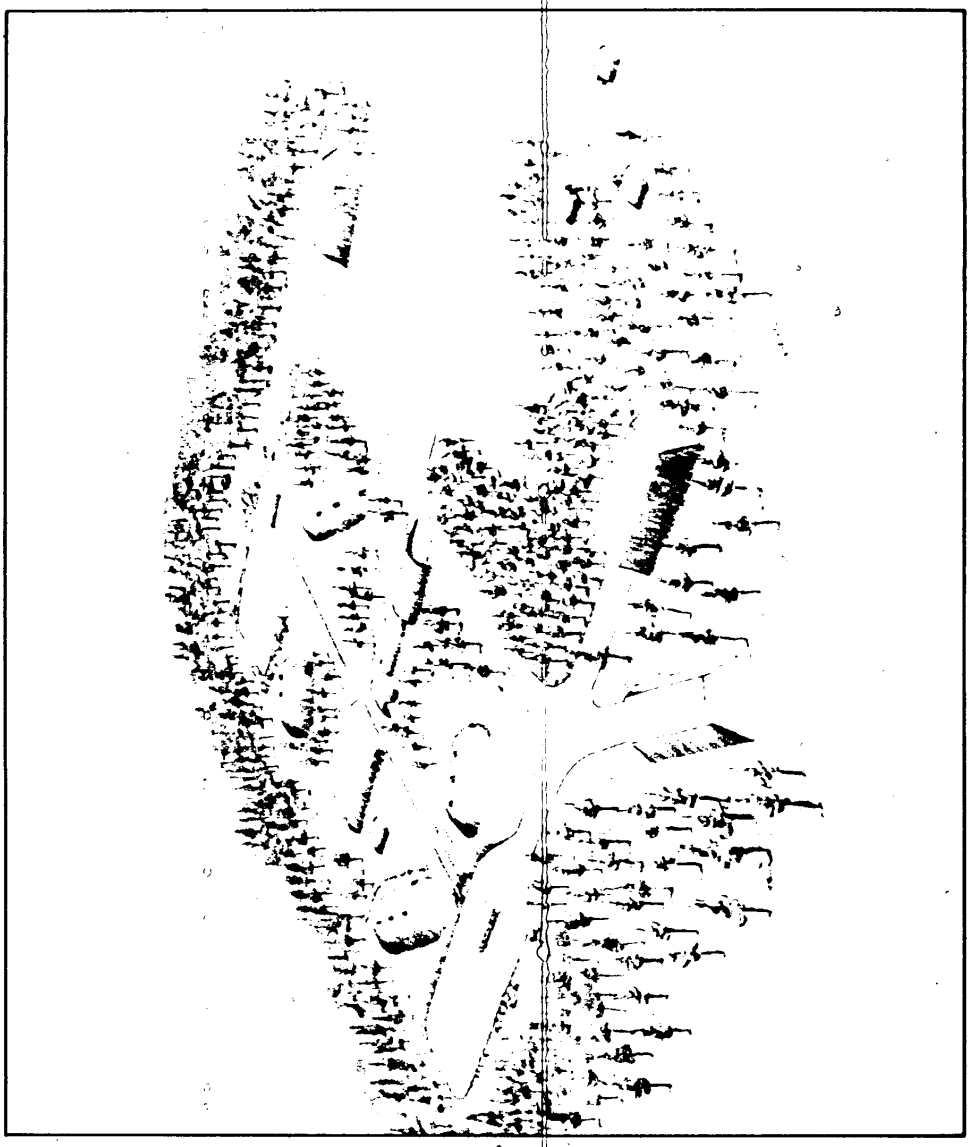

FIGURE 9. ARTIST'S CONCEPT OF TYPE IID ICBM LAUNCH SITE.

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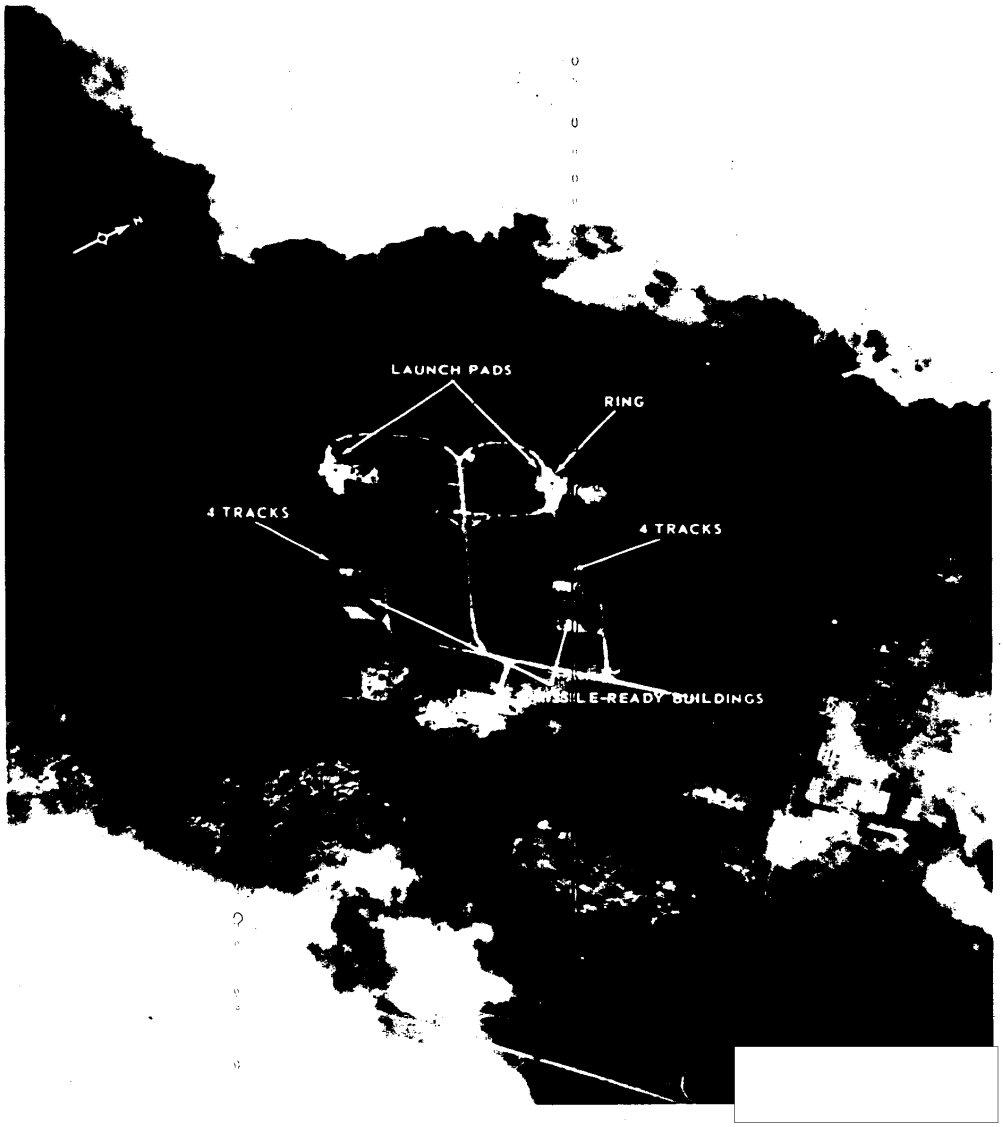

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FIGURE 10. LAUNCH SITE A (3), KOZELSK.

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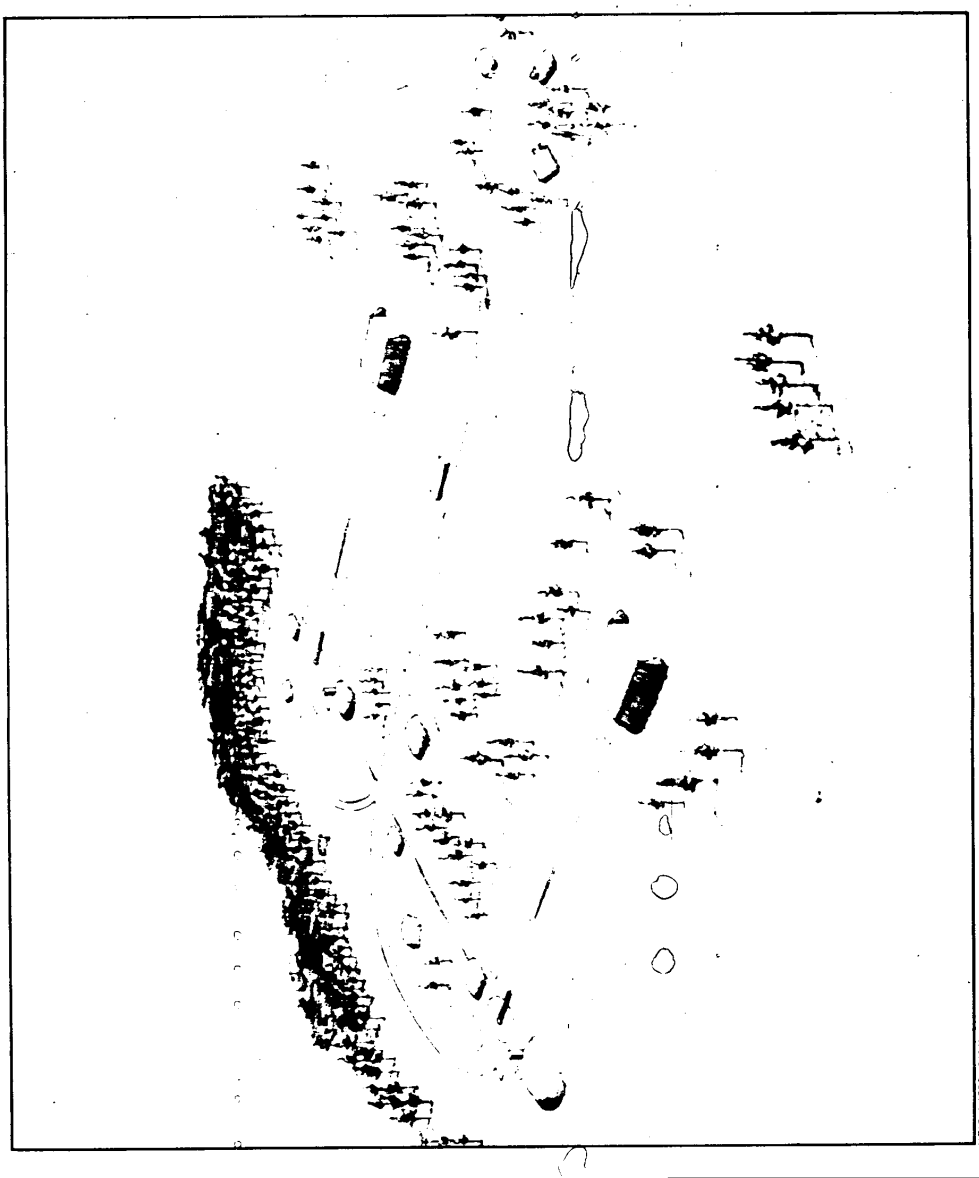

FIGURE 11. ARTIST'S CONCEPT OF TYPE IIC ICBM LAUNCH SITE.

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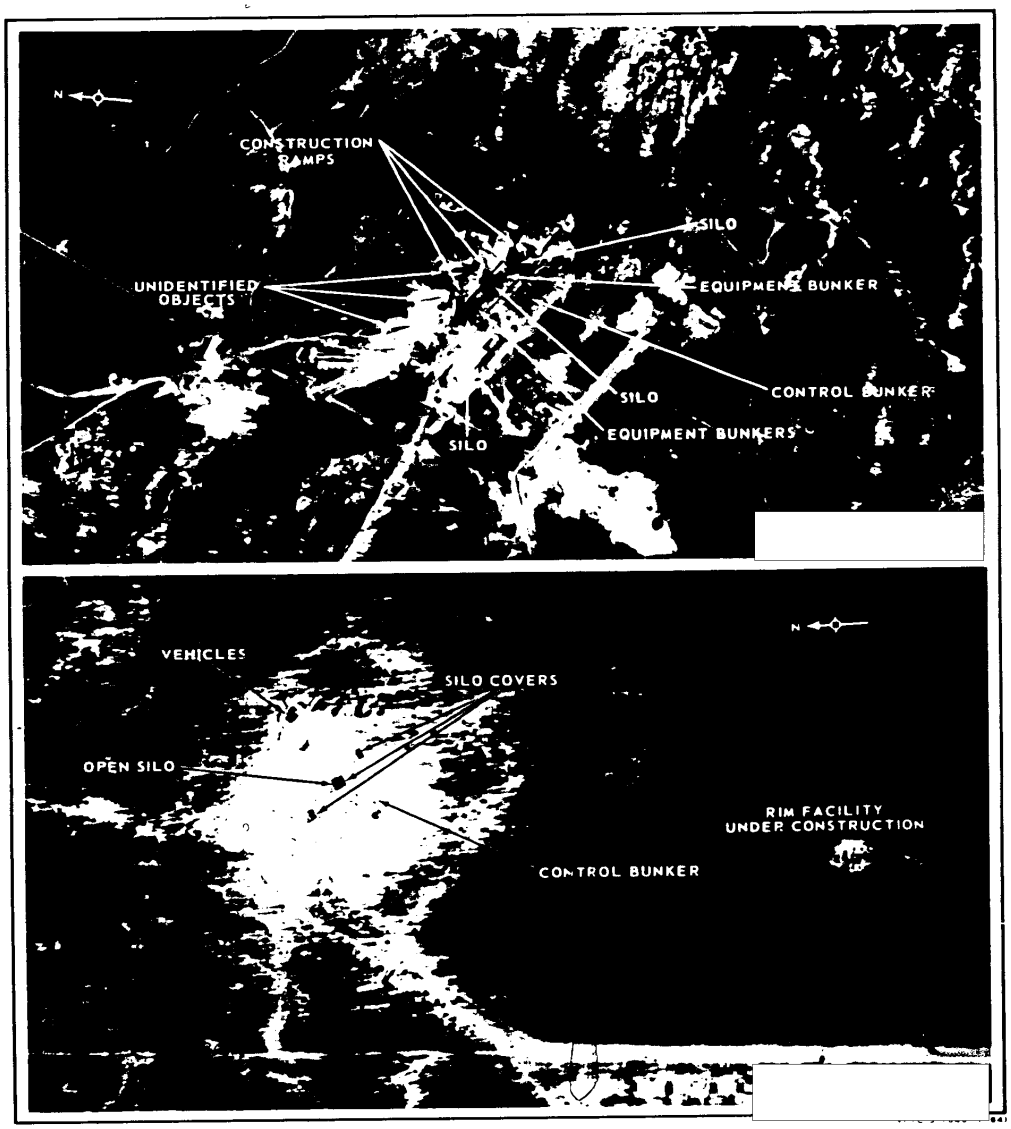

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FIGURE 12. LAUNCH SITES E (5), DROVYANAYA (TOP) AND F (7), VERKHNYAYA SALDA (BOTTOM).

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FIGURE 13. LAUNCH SITE C (6), PLESETSK.

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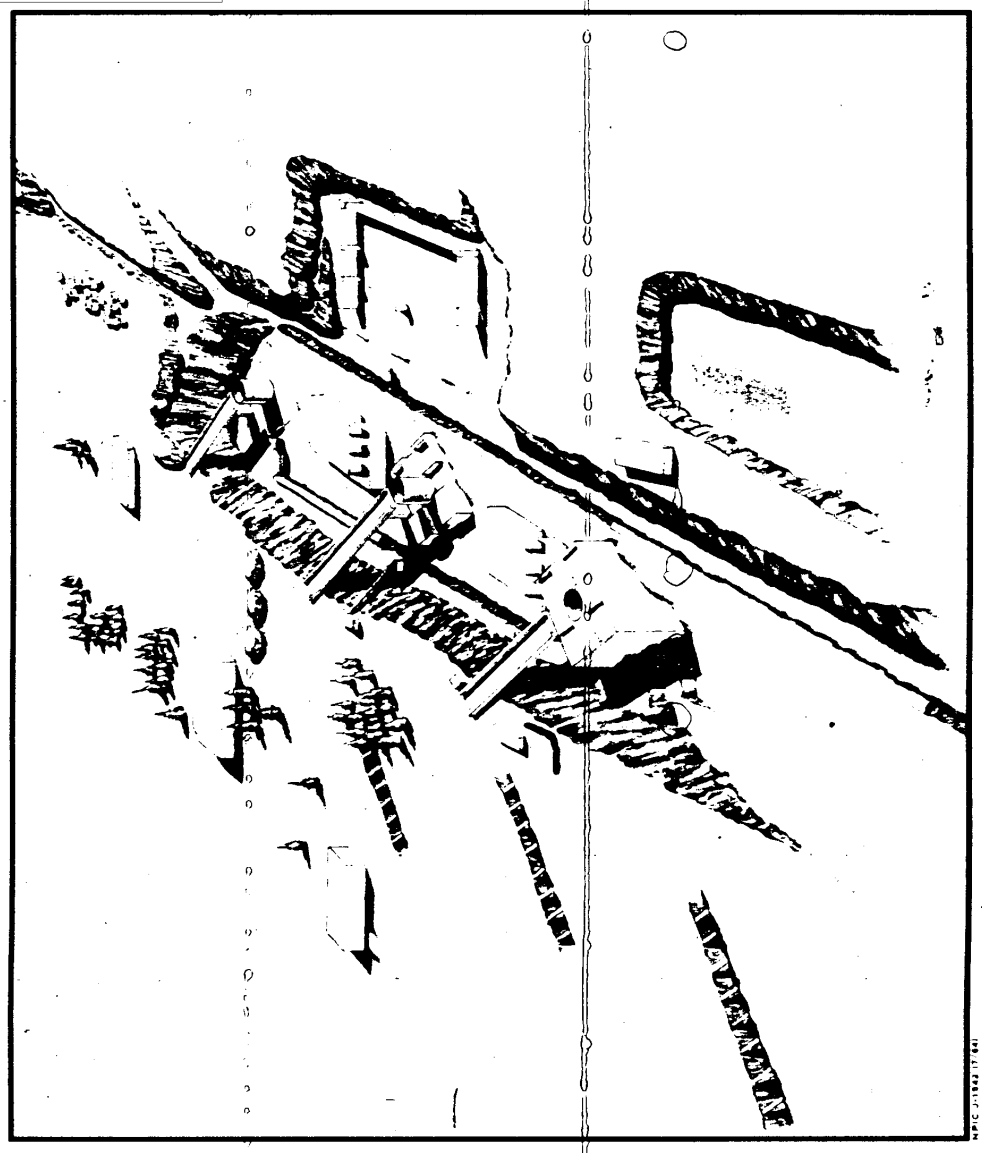

FIGURE 14. ARTIST'S CONCEPT OF TYPE IIIA ICBM LAUNCH SITE IN MIDSTAGE OF CONSTRUCTION.

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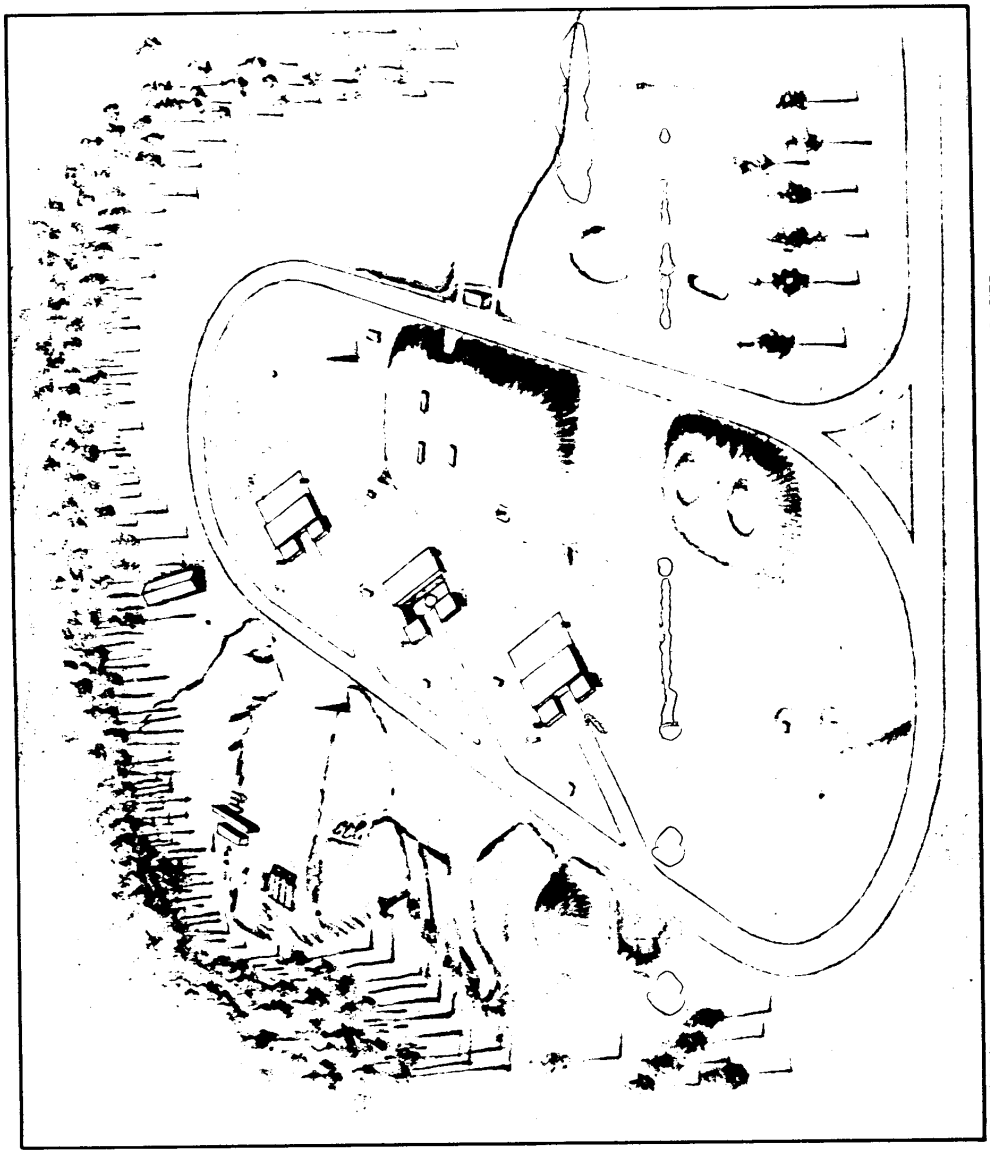

FIGURE 15: ARTIST'S CONCEPT OF COMPLETED TYPE IIIA ICBM LAUNCH SITE.

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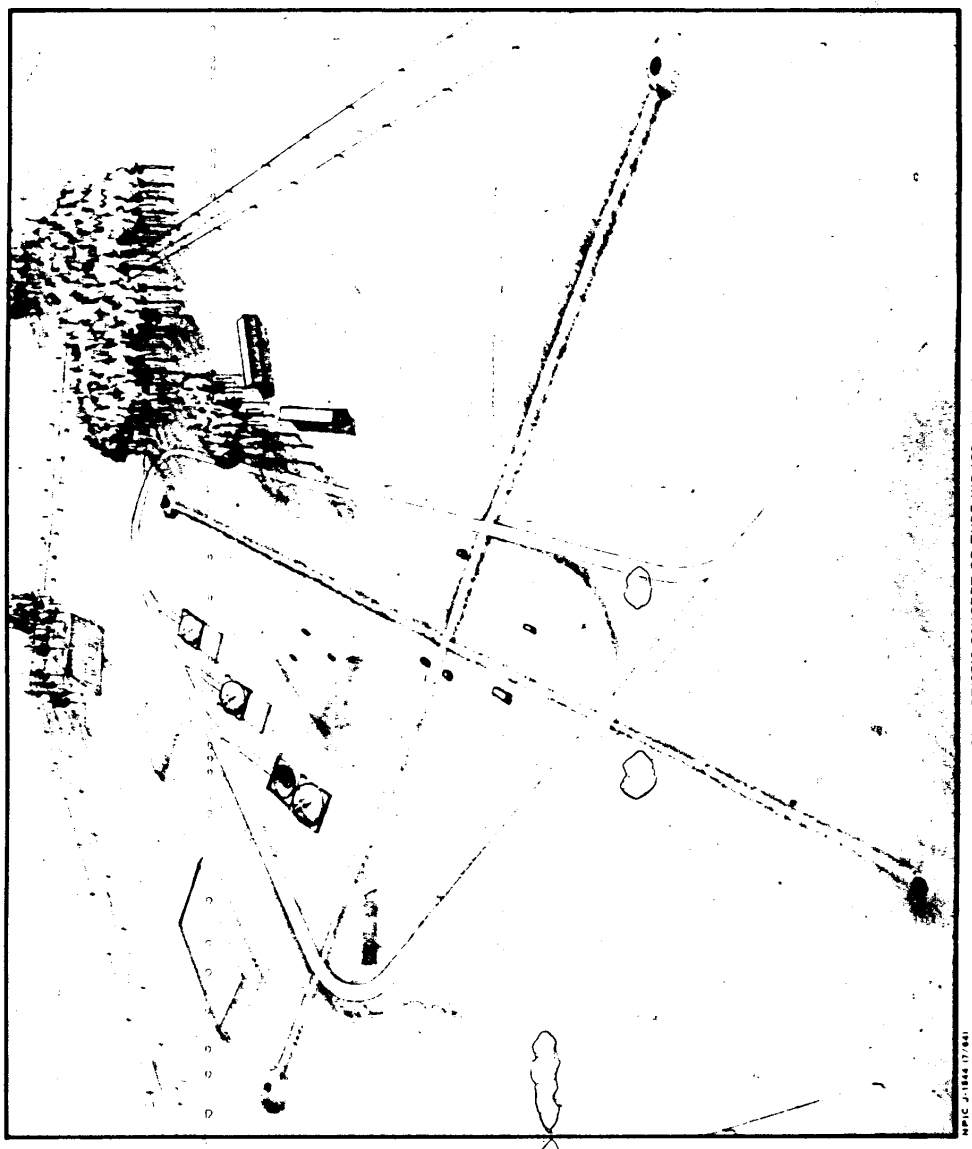

FIGURE 16. ARTIST'S CONCEPT OF TYPE IIIB ICBM LAUNCH SITE.

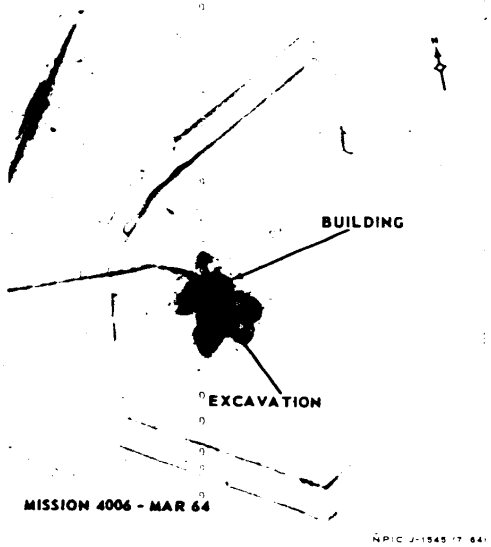

FIGURE 17. AREA OF CONSTRUCTION ACTIVITY BETWEEN LAUNCH COMPLEXES A AND B, TYURATAM.

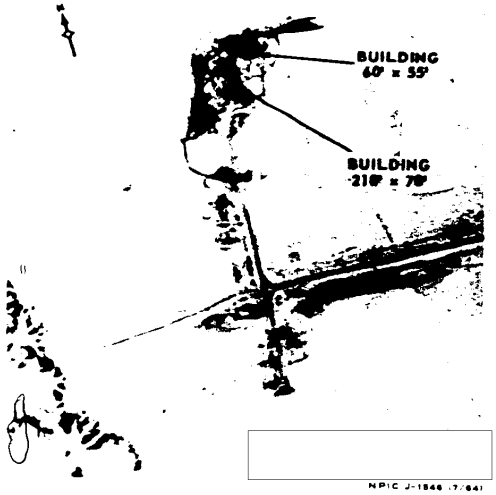

FIGURE 18. SUSPECT AREA WEST OF LAUNCH COMPLEX G, TYURATAM.

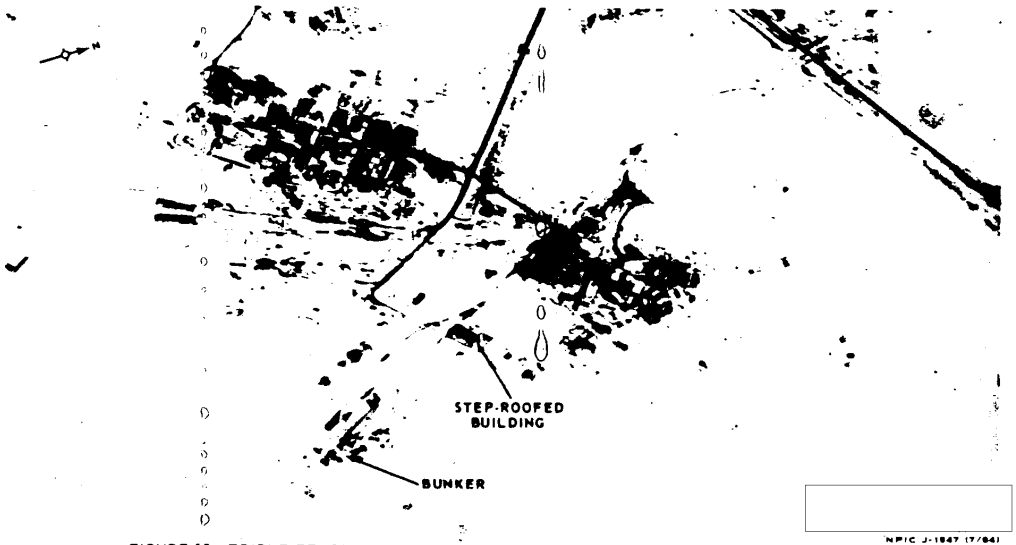

FIGURE 19. TRIPLE-FENCED SECURED AREA AT CENTRAL SUPPORT FACILITY, TYURATAM.

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FIGURE 20. FISHBONE ANTENNA AT AUXILIARY SUPPORT FACILITY, VERKHNYAYA SALDA.

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SOVIET MRBM/IRBM DEPLOYMENT

provide good coverage of a number of MRBM and IRBM sites, and furnish considerable detail which will require some time for full evaluation. No new sites were identified; however, one IRBM hard site at Taybola, previously carried as completed, was found to be still under construction. A total of 193 MRBM/IRBM sites (752 launchers) have been identified to date. Of the 752 launchers, 714 are estimated to be operational.

In this revision, we have amended Table 3 (Summary Evaluation of Soviet MRBM/IRBM Deployment) to designate only the site name used in the Target Data Inventory (TDI). See Figure 21 for locations of deployed MRBM/IRBM complexes. Typical configurations of the launch sites are shown in Figure 22. Type IV hard site configurations have been updated, based on Missions

SOFT SITES

Sites Lacking Usual Facilities

We have previously reported (11th and 12th Revisions) a total of 8 MRBM/IRBM soft sites which lack the housing and support facilities usually associated with such sites. Although we are still unable to determine how they fit into the deployment pattern, some signs of activity were apparent at the Bayram Ali IRBM, and the Rozhdestvenka MRBM sites The only other site of this type covered was the Ramoye IRBM site, but no activity was visible.

HARD SITES

Type IV Sites (MRBM)

Excellent coverage of the Kishentsy and Tym Launch Sites , and Kapustin Yar Launch Area 4C1 , indicates that there are four launch silos at MRBM hard sites. We, therefore, have amended Tables 1 and 3 accordingly. The Kishentsy Launch Site is shown in Figure 23.

Type IV Sites (IRBM)

provides the best coverage we have had to date of an IRBM hard site under construction. Evidence obtained from this photography of the Kalnik IRBM Launch Site (Figures 24 and 25) confirmed our previous assessment that all three silos are for launch purposes.

Construction Stoppage or Slowdown

In the twelfth revision, we indicated that an apparent slowdown or stoppage in construction at 2 hard MRBM and 8 IRBM sites had occurred. Additionally, photography of the Taybola 3 IRBM Launch Site revealed that this facility, previously carried as completed based on construction timing, is still in an early stage of construction (Figure 26). This brings to 11 the total number of hard sites which are considerably behind normal construction schedules.

KAPUSTIN YAR MISSILE TEST CENTER

Test Range Facilities

furnish the first coverage obtained of some parts of the Kapustin Yar Missile Test Center in over two years. Excellent cloud-free photography enabled us to update information on this test center and to extract considerable detail on activities at the rangehead.

coverage of Launch Complex A (Figure 27) shows an erected SS-4 missile and associated equipment on the southern launch pad. The missile is apparently being serviced at the time of photography. Of significance is the fact that we had previously associated this facility only with the short-range-ballistic-missile program.

Launch Area 1C (Figure 28) appears inactive; however, two new launch positions are under construction in the northeast part of the area.

An apparent SS-4 exercise is underway on the main launch pad at Launch Area 3C (Figure

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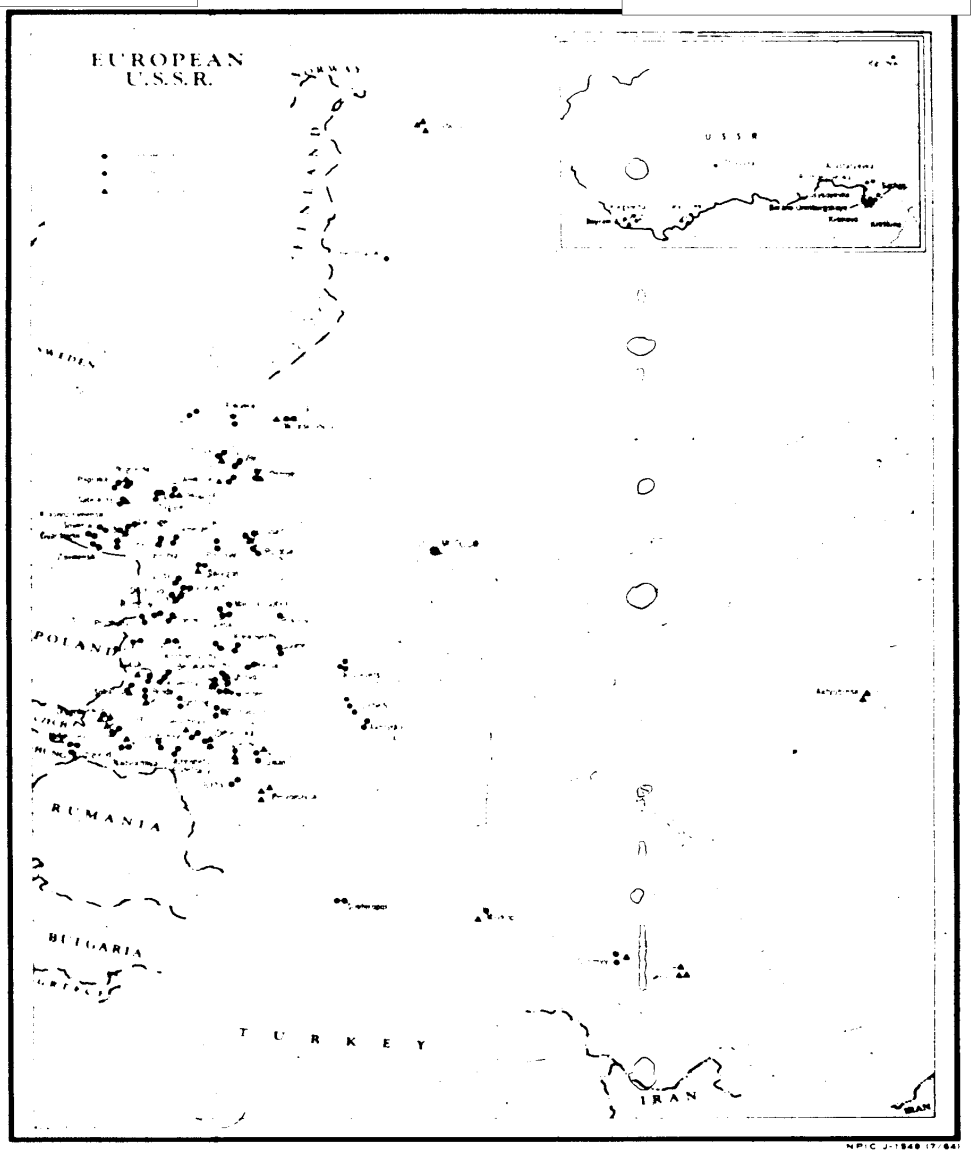

FIGURE 21. DEPLOYMENT OF SOVIET MRBM IRBM COMPLEXES.

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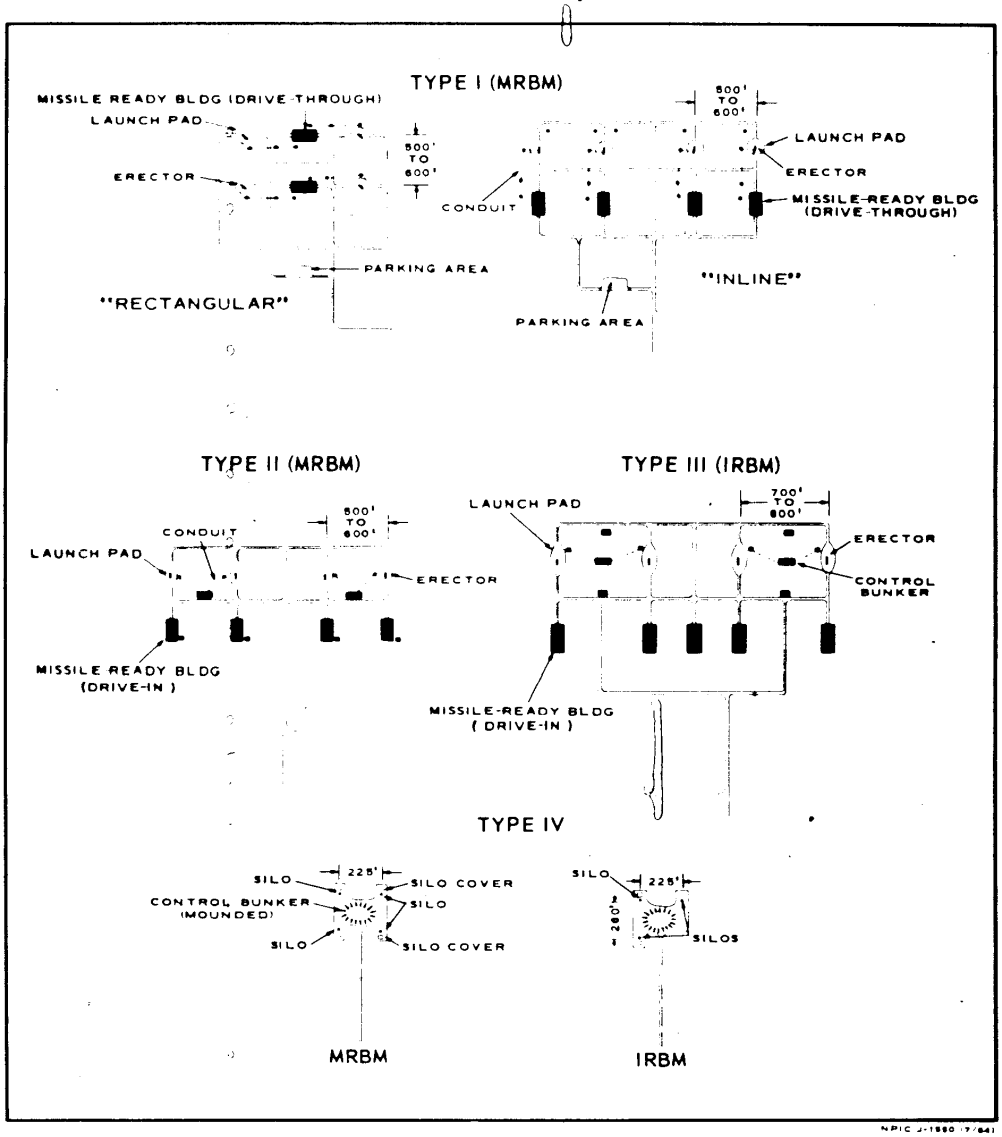

FIGURE 22. TYPICAL CONFIGURATIONS OF MRBM IRBM LAUNCH SITES.

29). An SS-4 missile on its transporter is visible, as well as other vehicles. On the adjacent southwest pad, about 20 vehicles can be seen.

At Launch Site 4C1, the prototype for deployed MRBM hard sites, all four silo covers are clearly visible (Figures 30 and 31). The two forward silos are open, and the cover of the northeast silo has been moved a considerable distance back from the silo opening. A shelter has been erected over this particular silo, indicating that some repair or maintenance is taking place. The silo covers appear to be dome-shaped.

Launch Site 4C2, the prototype for deployed IRBM hard sites, is shown in Figures 32 and 33. Considerable activity is apparent at the site and several items of equipment are visible.

At Launch Site 5C1 (Figure 34), two tactical-type missiles on carriers are visible on the left (northern) pad, while on the right (southern) pad an unidentified missile on a transporter can be seen. Several missile-associated vehicles are discernible on or near both pads. These sightings appear to conflict with our previous assessment that this site was utilized solely for the operational training of SS-5 units.

reveals that Launch Site 5C2 (Figure 35) is incomplete and that no construction progress has occurred since October 1962 both show signs of activity at Launch Complex E. shows that some snow had been cleared from the pad area, but otherwise no apparent change in facilities since TALENT photography of December 1959. (Figure 36) reveals two small unidentified objects north of the pad, and several unidentified vehicles present within the fenced area.

Details of the Troop Training and Support Area (Figure 37) were furnished New construction of permanent-type billets and a tent bivouac area are discernible. Numerous items of equipment are scattered throughout this area.

A large unidentified facility was observed west of Launch Complex B (Figure 38) The facility is secured and rail served. Although we cannot assign a function to this area, its configuration and location indicate that it will not be launch associated.

Test Range Activities

Firing activity on the Kapustin Yar range was very light during April and the first half of May 1964. Some of the activity, however, may be significant in the light of observations on the of the rangehead. A ballistic missile apparently was launched successfully to a range of 440 nm This operation appeared similar to operations conducted (possible firing to at least a 300-nm range) (either launch failure or cancellation). The possibility of a new short-range-ballistic-missile test program appears to be indicated, although the testing of new components for other systems cannot be excluded.

Other operations of interest during the period included the firing of a probable SS-4 to the 1,020-nm range firing of an unidentified missile to the 630-nm range a launch to the 150-nm impact area and the apparent cancellation of an operation to the 2,200-nm impact area

FIXED FIELD SITES

Launch Area 2G at Kapustin Yar (Figure 39) probably represents the prototype for the 12 fixed field sites identified to date (See 12th Revision, page 8).

The purpose of these sites is still undetermined. Continuing analysis indicates that all probably do not serve the same purpose. A few may actually represent the alternate/reserve MRBM positions referred to in IRONBARK docu-

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ments; others, located too near permanent facilities to serve this function, may be training facilities; several may represent early deployment of the SS-3 system.

In any event, a capability of MRBM units to fire from minimum-prepared positions was confirmed in Cuba and we believe that all such units are currently capable of moving to, and firing from, field-type positions. The limited requirements for such positions -- primarily survey and a level pad area -- are such that many of these positions are not susceptible to detection by overhead reconnaissance vehicles, particularly if the positions are unoccupied.

STRATEGIC ROCKET FORCES MRBM/IRBM SITE COMMUNICATIONS LINKS

Continuing analysis of photography from various missions has brought to light high-frequency communications facilities at a number of MRBM/IRBM sites. Fishbone antennae have been observed at the Ugolnyy, Novosysoyevka 1, Kara Babau 1 (Figure 40), and Kurgancha 2 launch sites. Two double rhombics are located near Anastasyevka (Figure 41). A large microwave tower is also associated with the Anastasyevka Complex, as well as with the Taybola launch sites. It is significant that the general orientation of these high-frequency communications facilities is toward Moscow.

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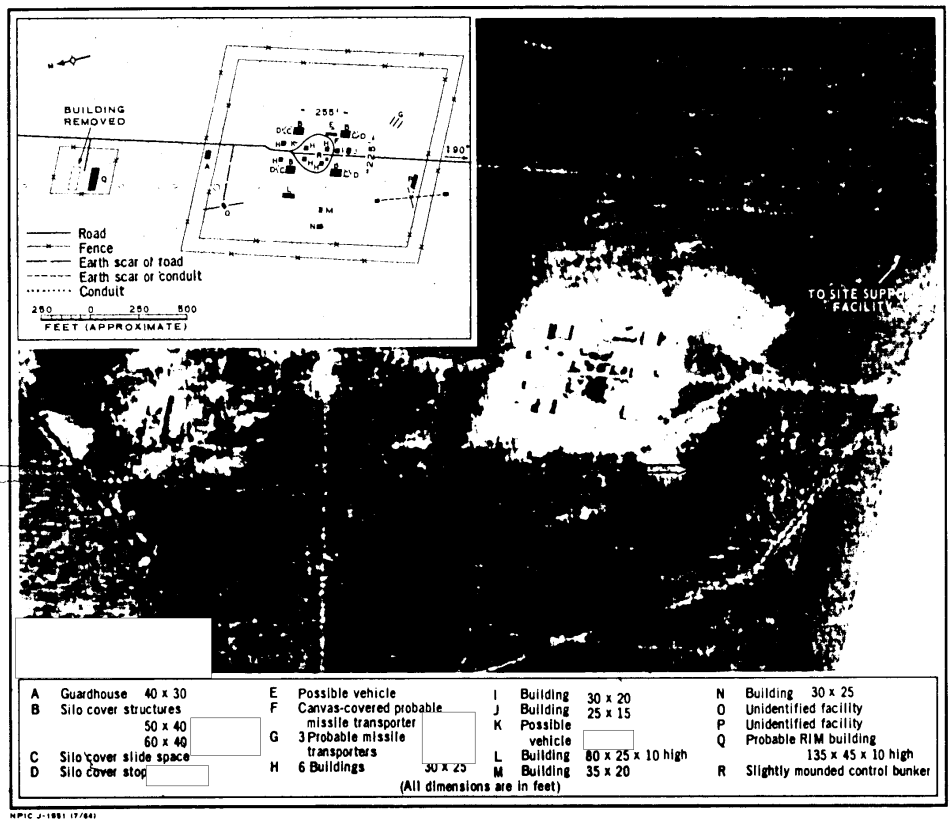

NPIC J-1881 (7/64)

FIGURE 23. KISHENTSY MRBM LAUNCH SITE.

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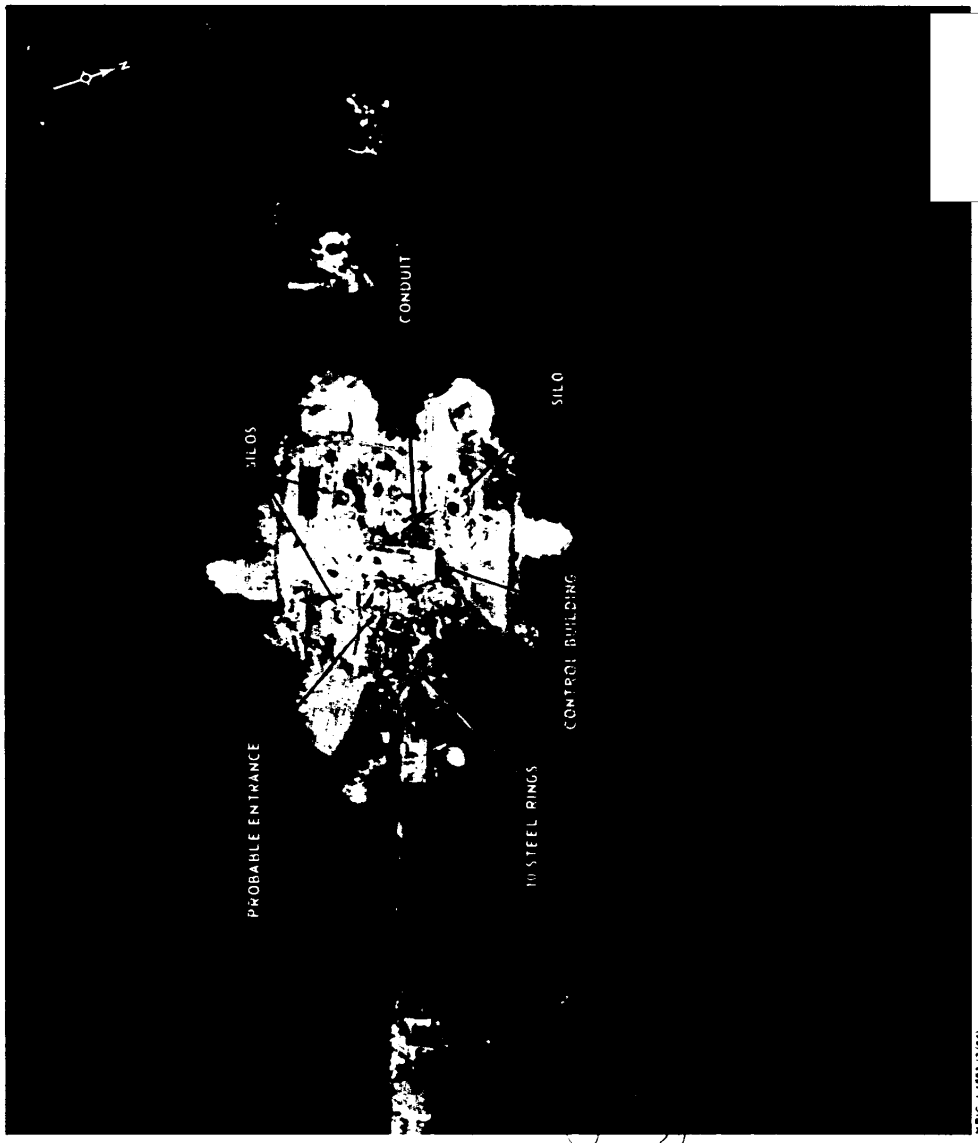

FIGURE 24. KALNIK IRBM LAUNCH SITE.

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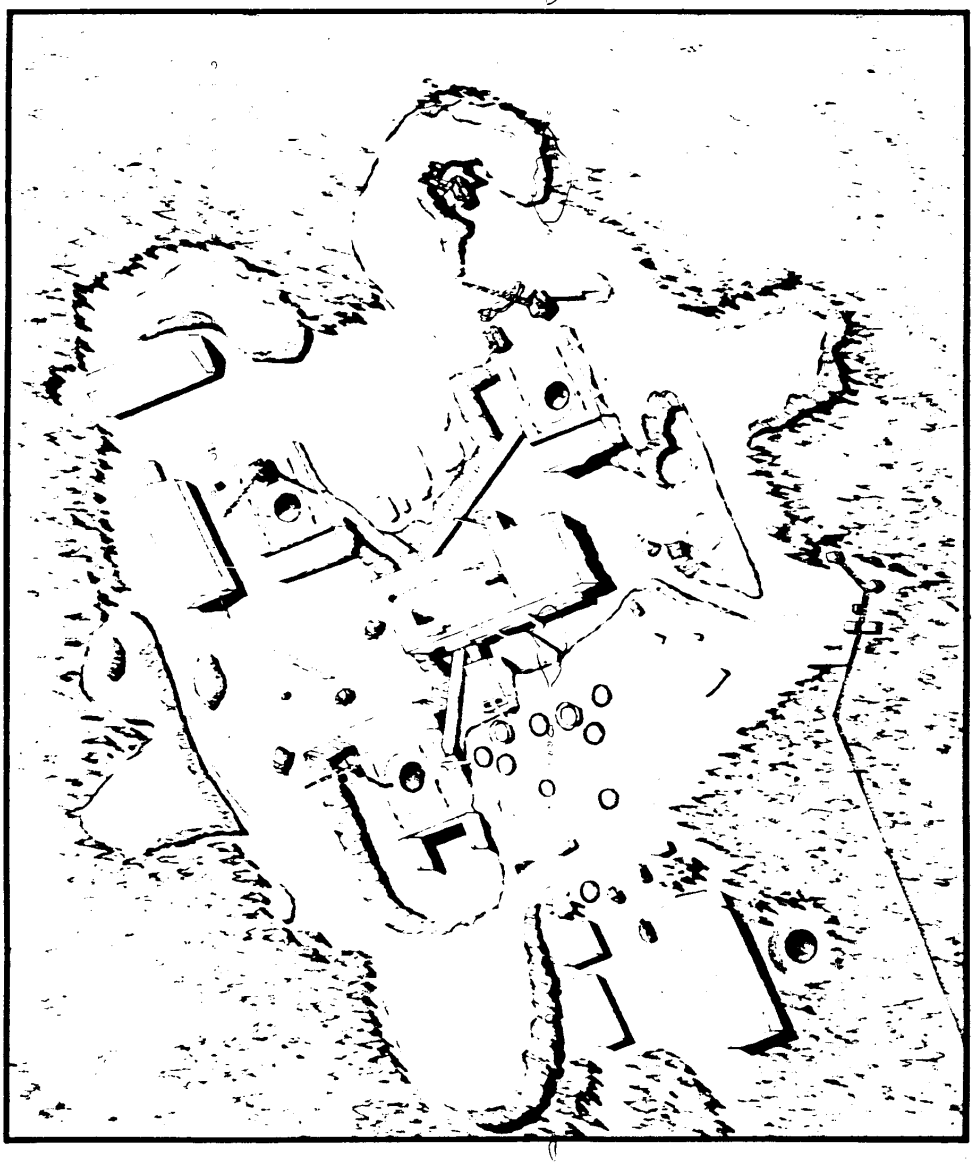

FIGURE 25. ARTIST'S CONCEPT OF KALNIK IRBM LAUNCH SITE.

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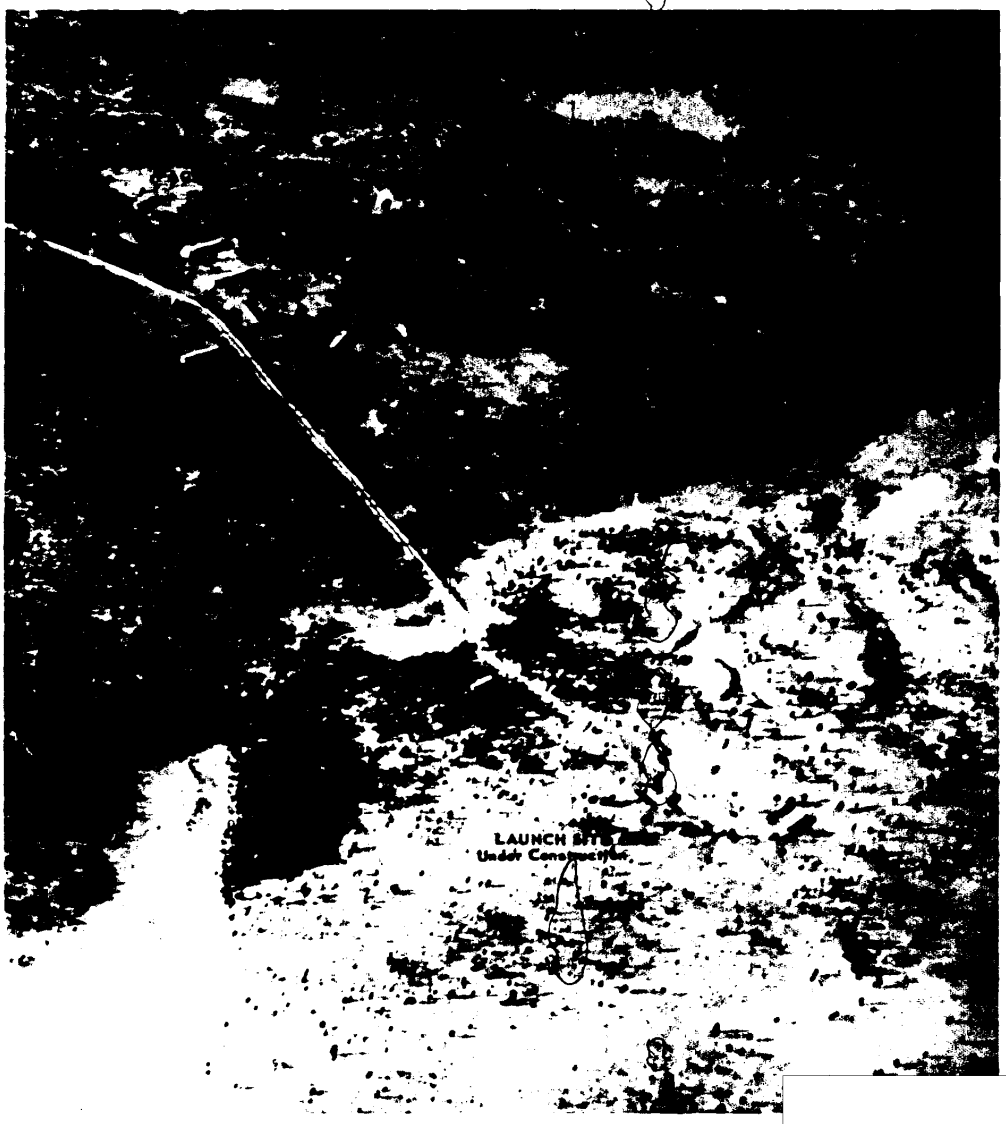

FIGURE 26. TAYBOLA 3 IRBM LAUNCH SITE.

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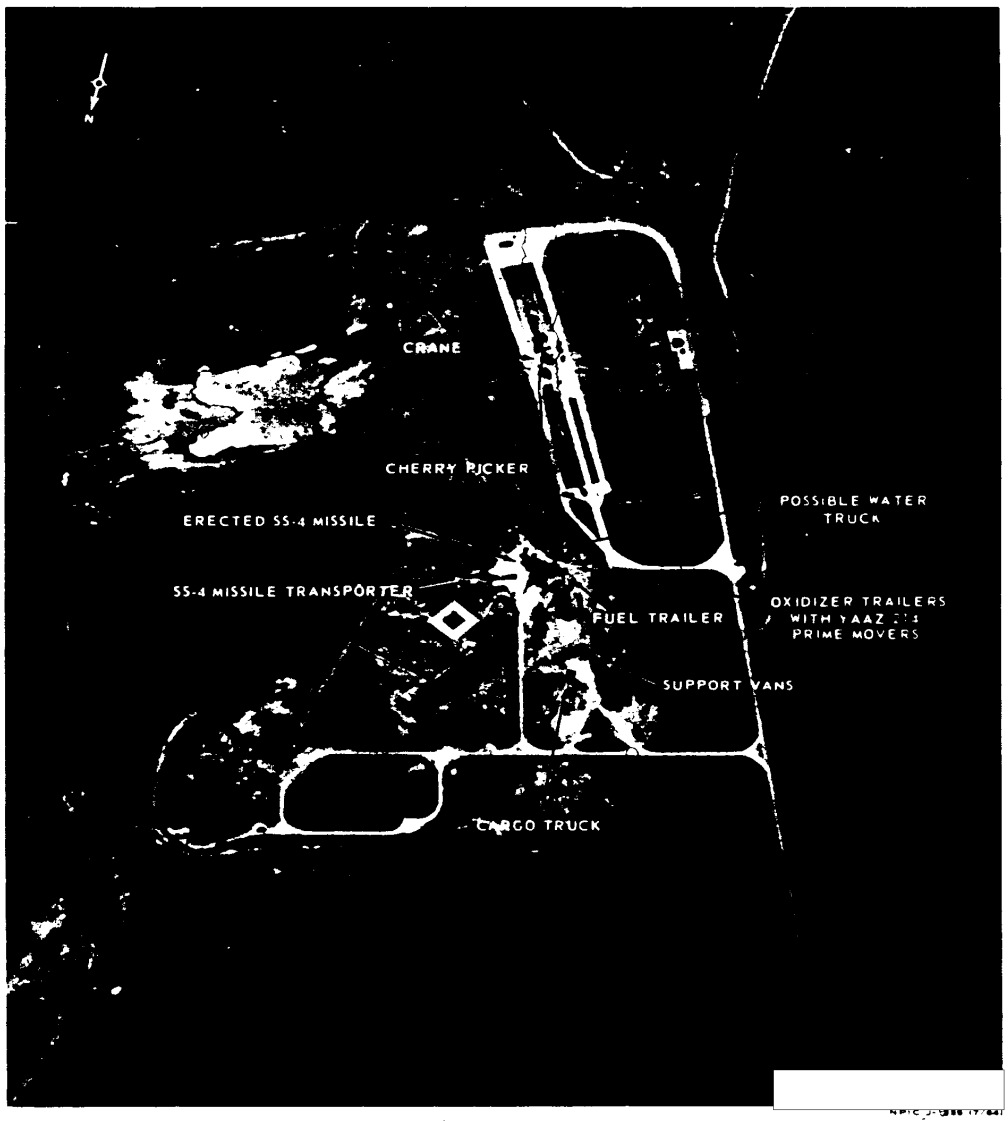

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FIGURE 27. LAUNCH COMPLEX A, KAPUSTIN YAR.

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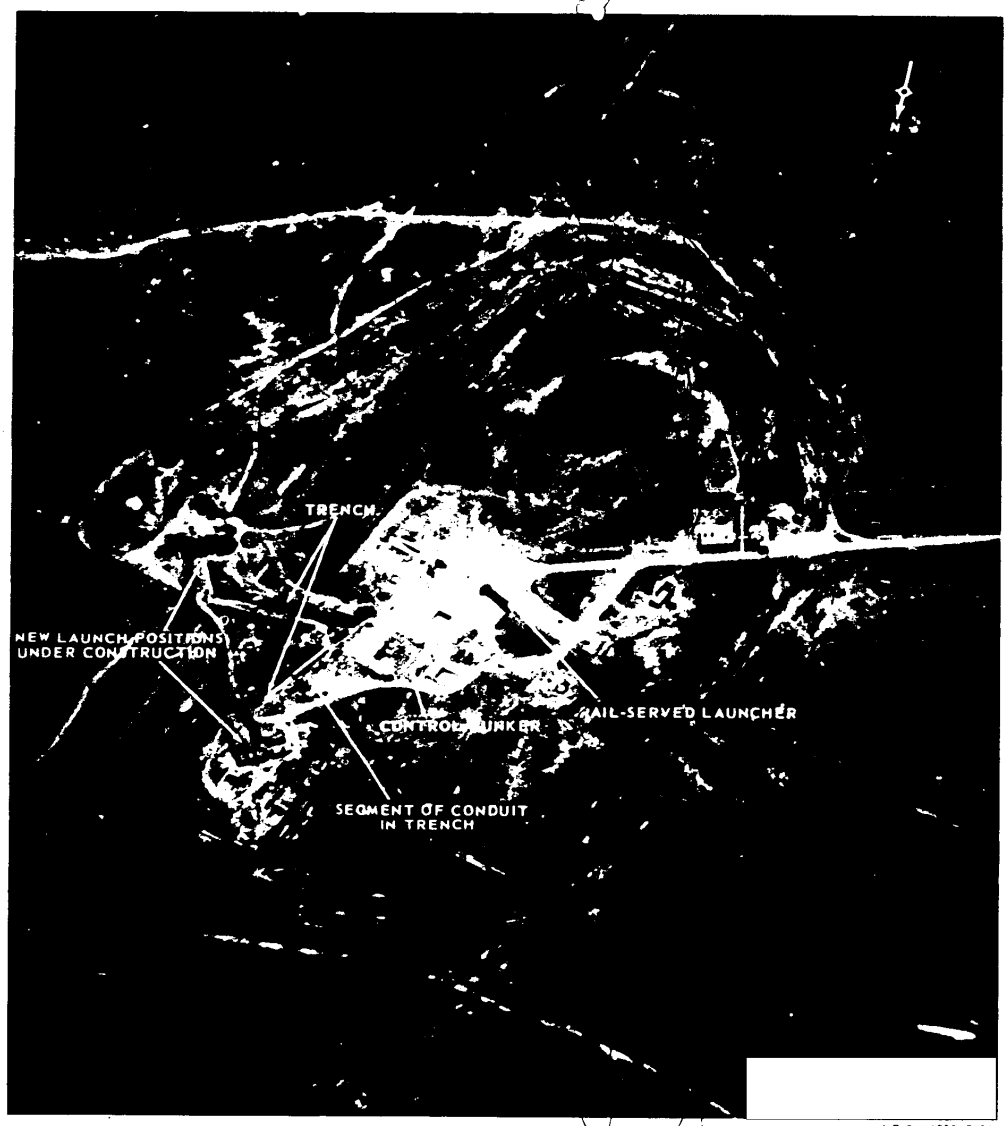

FIGURE 28. LAUNCH AREA 1C, KAPUSTIN YAR.

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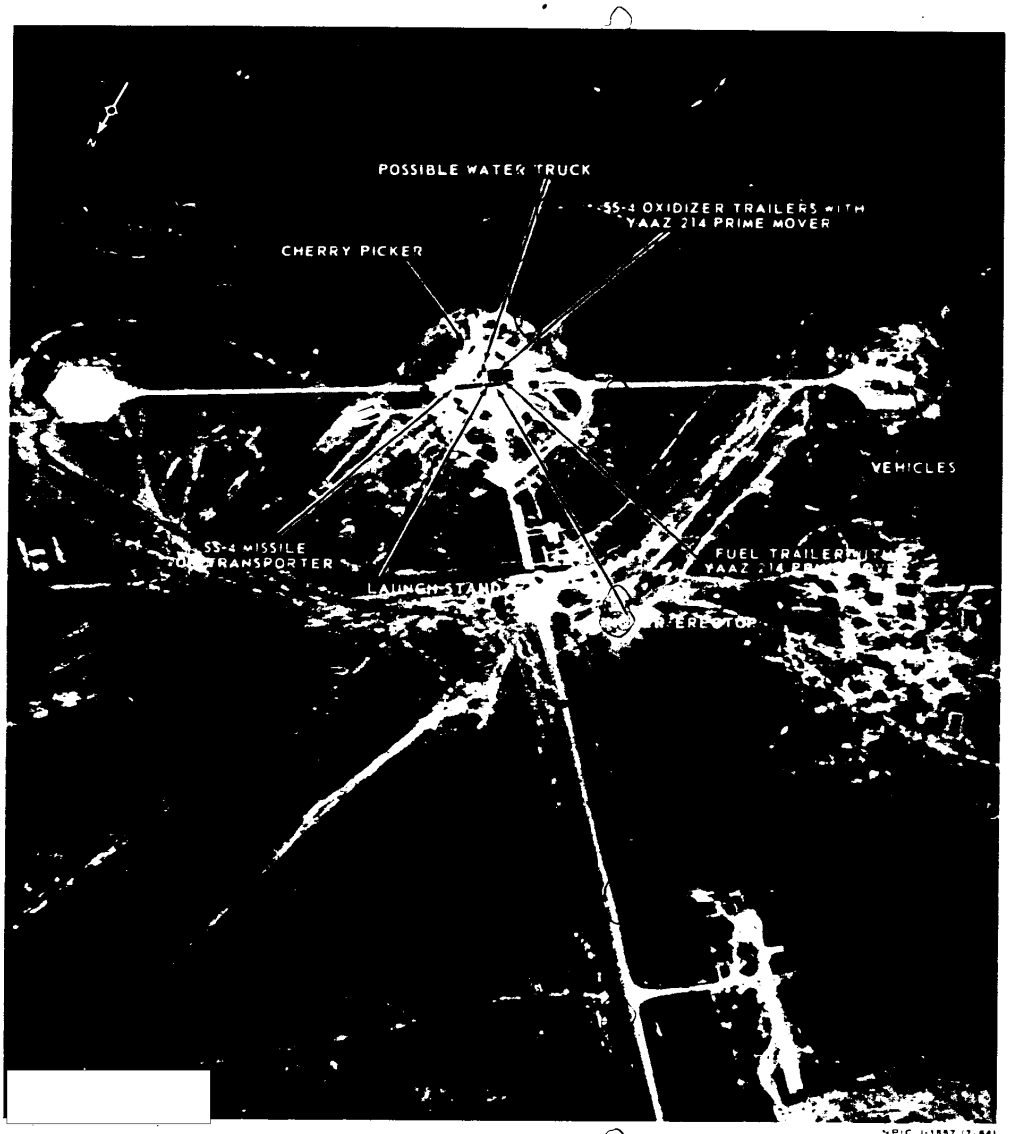

FIGURE 29. LAUNCH AREA 3C, KAPUSTIN YAR.

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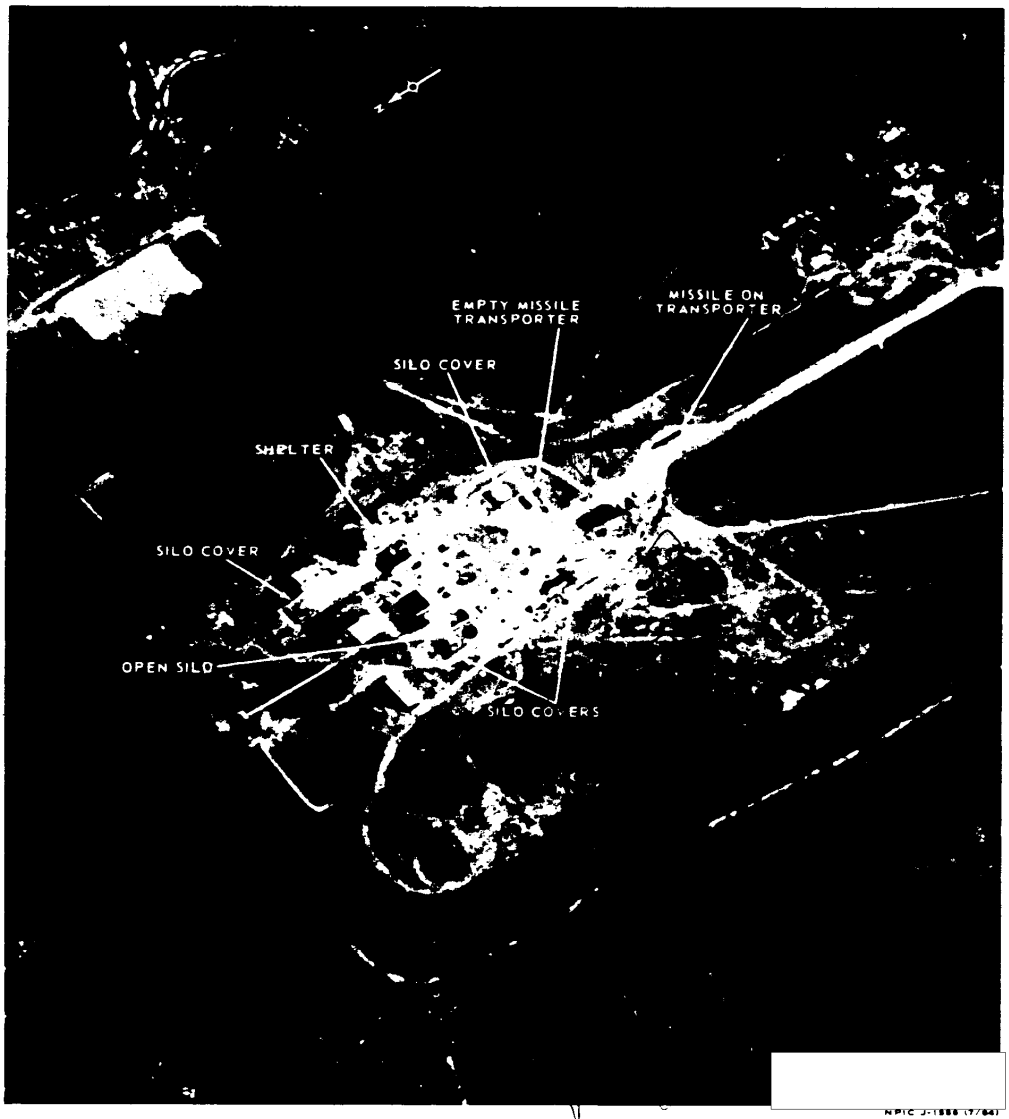

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FIGURE 30. LAUNCH SITE 4C1, KAPUSTIN YAR.

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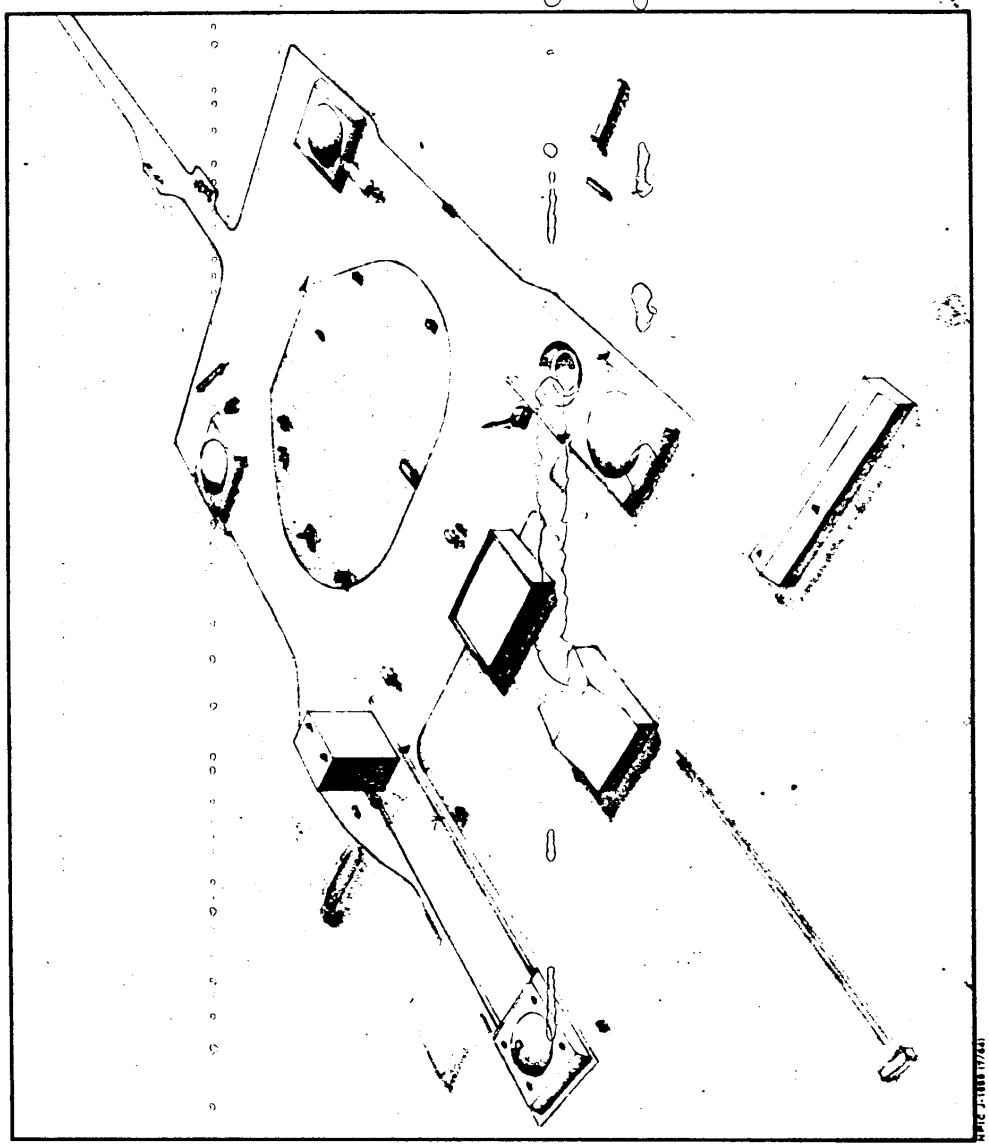

FIGURE 31. ARTIST'S CONCEPT OF LAUNCH SITE 4C1, KAPUSTIN YAR.

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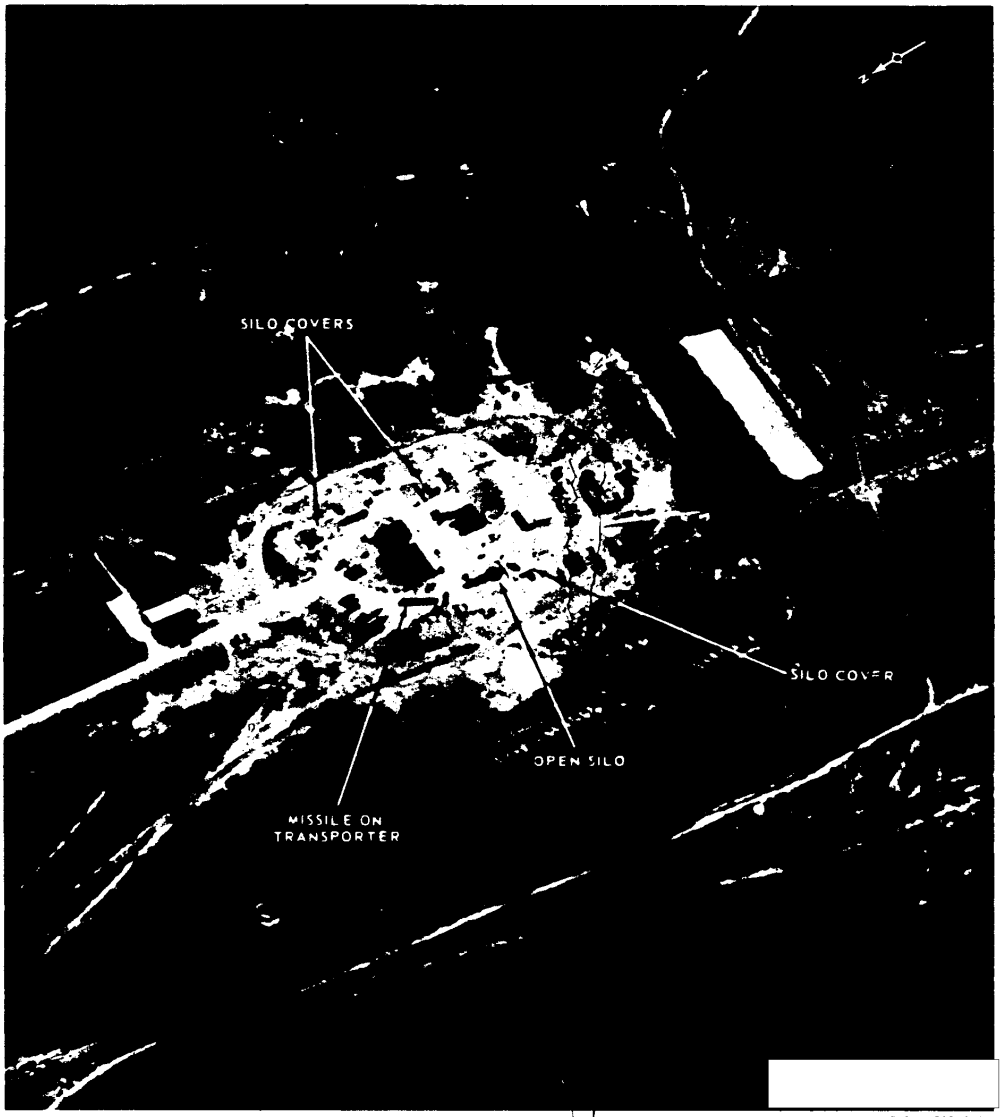

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FIGURE 32. LAUNCH SITE 4C2, KAPUSTIN YAR.

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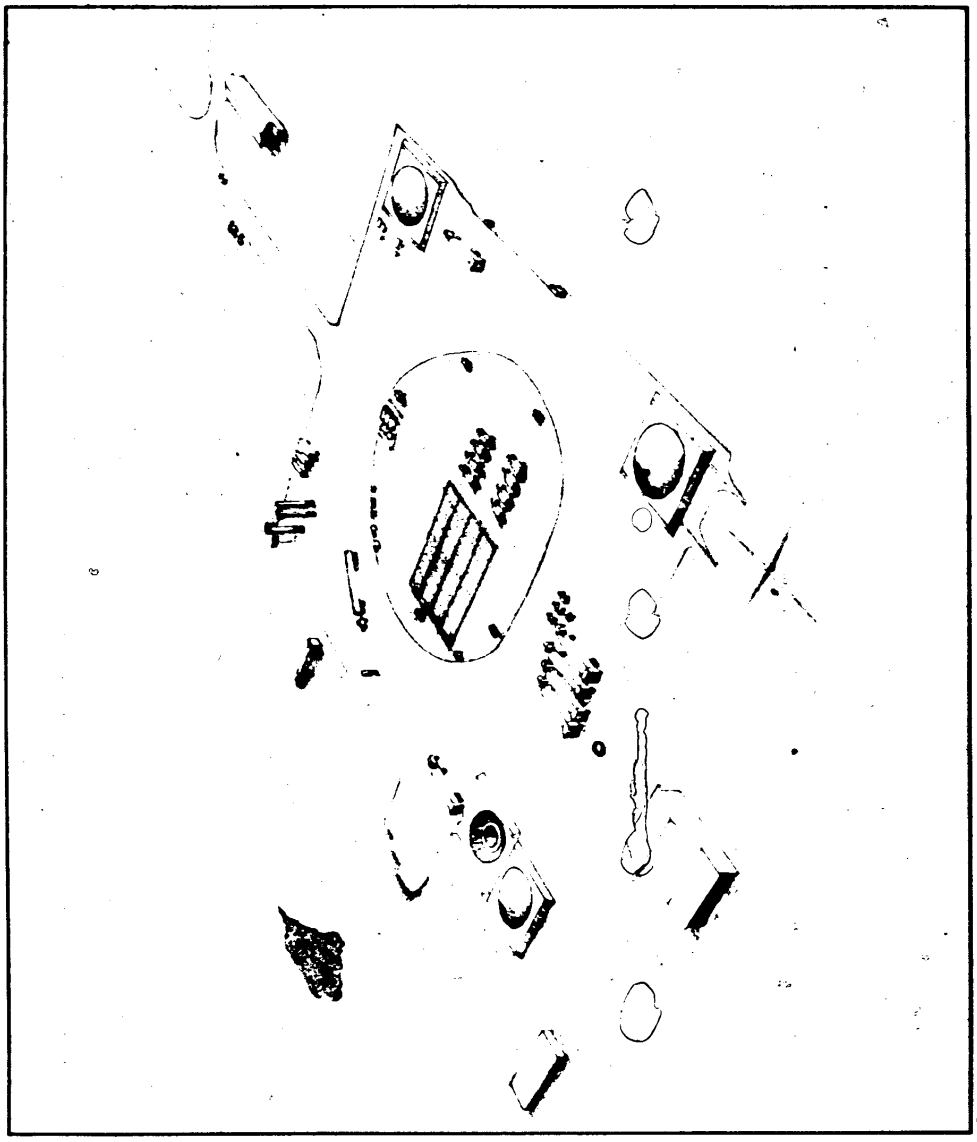

FIGURE 33. ARTIST'S CONCEPT OF LAUNCH SITE 4C2, KAPUSTIN YAR.

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FIGURE 34. LAUNCH SITE 5C1, KAPUSTIN YAR.

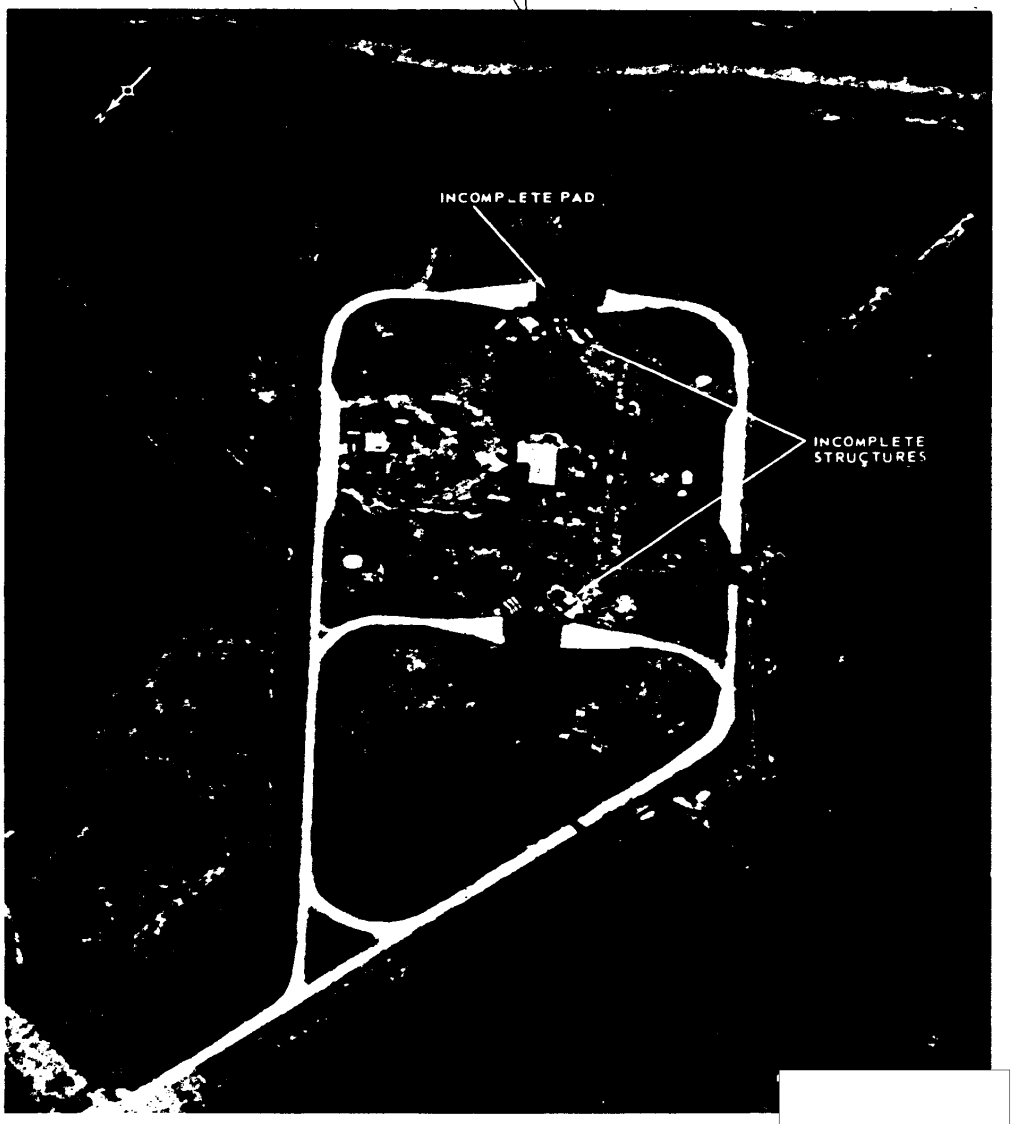

FIGURE 35. LAUNCH SITE 5C2, KAPUSTIN YAR.

FIGURE 36. LAUNCH COMPLEX E, KAPUSTIN YAR.

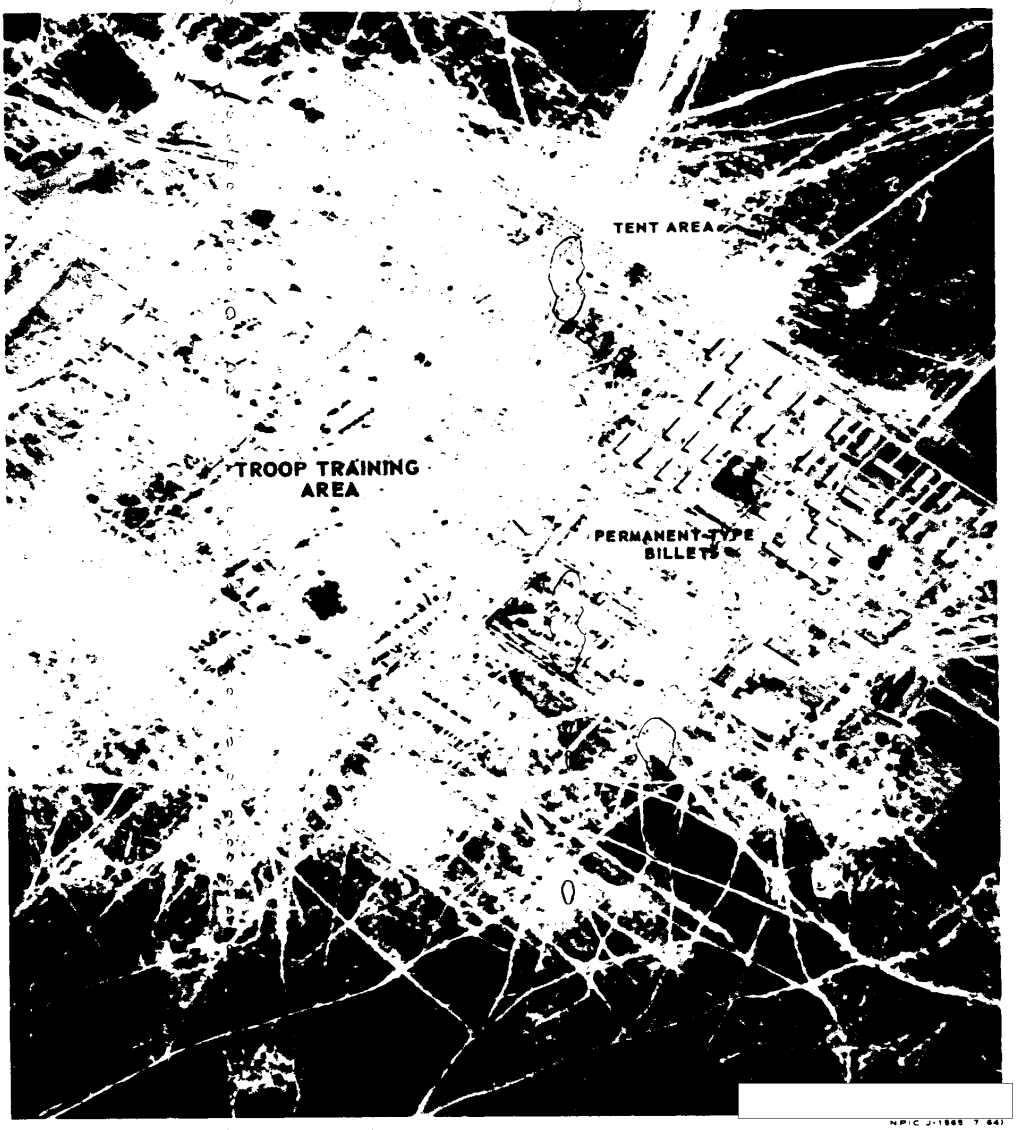

FIGURE 37. TROOP TRAINING AND SUPPORT AREA, KAPUSTIN YAR.

FIGURE 38. UNIDENTIFIED FACILITY WEST OF LAUNCH COMPLEX B, KAPUSTIN YAR.

FIGURE 39. LAUNCH AREA 2G, KAPUSTIN YAR.

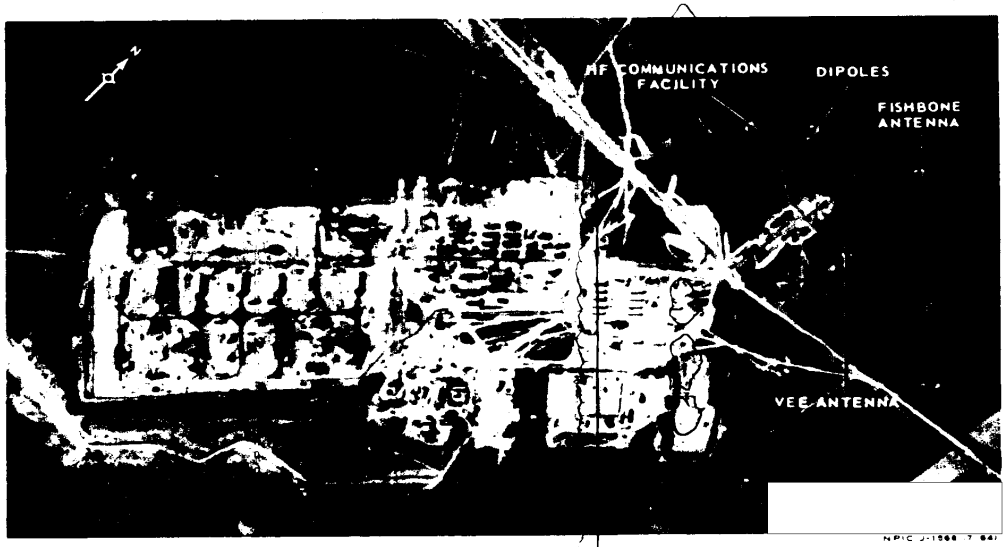

FIGURE 40. FISHBONE ANTENNA AT KARA BABAU 1 IRBM LAUNCH SITE.

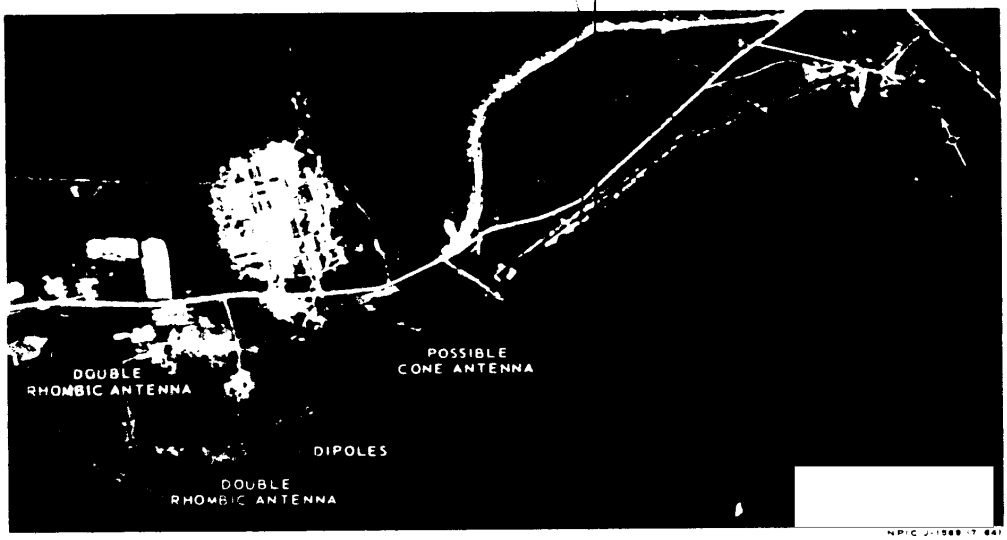

FIGURE 41. DOUBLE RHOMBIC ANTENNAS NEAR ANASTASYEVKA MRBM LAUNCH COMPLEX.

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*TABLE 1. SUMMARY OF ESTIMATED STATUS OF IDENTIFIED ICBM AND MRBM/IRBM LAUNCHERS AT DEPLOYED COMPLEXES**

Type	Sites	Launchers	Operational	U/C	Type	Sites	Launchers	Operational	U/C
		ICBM					MRBM/IRBM		
I	3	4	4	0	I	84	336	336	0
IIA	5	10	10	0	II	53	212	212	0
IIB	29	58	58	0	III	15	60	60	0
IIC	7	14	14	0	IV (MRBM)	21	84	76	8
IID	31	62	60	2	IV (IRBM)	20	60	30	30
IIIA	26	78	39	39					
IIIB	4	12	3	9					
TOTAL	105	238	188	50	TOTAL	193	752	714	38

*See Tables 2 and 3 for details. Figures include three launch silos at Type III ICBM and Type IV IRBM sites, and four launch silos at Type IV MRBM sites.

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TABLE 2. SUMMARY EVALUATION OF SOVIET ICBM DEPLOYMENT

Location*	Coordinates	Type of Site	Number of Launchers		Estimated Quarter Site Operational				Estimated Status 1 June 1964
			Soft	Hard	1st	2nd	3rd	4th	
DROVYANNYA									
Site A (1)	51 25N 113 00E	IIB		2	63				Operational
Site B (2)	51 25N 113 04E	IIA		3	64				Operational
Site C (4)	51 28N 113 04E	IID		2				63	Operational
Site D (3)	51 20N 113 01E	IID		2	64				Operational
Site E (5)	51 23N 112 50E	IIA		3		65			U C
Site F (6)	51 20N 112 55E	IIA		3		65			U C
GLADKAYA									
Site A (3)	56 20N 92 18E	IID		2				63	Operational
Site B (2)	56 25N 92 27E	IID		2	64				Operational
Site C (4)	56 29N 91 58E	IIA		3			65		U C
Site D (5)	56 20N 92 13E	IIA		3		65			U C
Site E (6)	56 26N 92 11E	IIA		3			65		U C
IVATKA									
Site A (1)	56 59N 85 32E	IIB		2			62		Operational
Site B (2)	57 01N 85 39E	IIB		2	63				Operational
Site C (3)	56 54N 85 39E	IID		2				63	Operational
KOSTROMA									
Site A (1)	58 02N 41 22E	IIB		2			62		Operational
Site B (2)	58 02N 41 07E	IIB		2			62		Operational
Site C (3)	57 59N 41 02E	IIB		2					Operational
Site D (4)	58 05N 41 04E	IIB		2	63				Operational
Site E (5)	57 58N 41 14E	IIA		3				63	Operational
Site F (6)	58 01N 41 10E	IID		2			63		Operational
Site G (7)	58 06N 41 12E	IID		2	64				Operational
Site H (8) Probable	58 01N 41 13E	IIA		3			65		U C
KOZELSK									
Site A (1)	53 54N 35 03E	IIC		2			63		Operational
Site B (2)	53 48N 35 42E	IIC		2				63	Operational
Site C (3)	53 42N 35 43E	IIIB		3			65		U C
Site D (4)	53 51N 35 51E	IIC		2				63	Operational
Site E (5)	53 52N 35 01E	IIIB		3			64		U C
Site F (6)	53 42N 35 59E	IIIB		3				64	U C
NOVOSIBIRSK									
Site A (1)	55 19N 83 10E	IIB		2	63				Operational
Site B (2)	55 19N 83 02E	IIA		3		63			Operational
Site C (3)	55 27N 82 54E	IIA		3			64		U C
Site D (4)	55 22N 83 14E	IID		2				63	Operational
Site E (5)	55 20N 82 56E	IID		2	64				Operational
OLOVYANNAYA									
Site A (1)	50 54N 115 48E	IIA		3	64				Operational
Site B (2)	50 55N 115 43E	IIA		3	65				U C
Site C (3)	51 01N 115 58E	IIA		3				65	U C

TABLE 2. (Continued)

Location*	Coordinates	Type of Site	Number of Launchers		Estimated Quarter Site Operational				Estimated Status
			Soft	Hard	1st	2nd	3rd	4th	1 June 1964
OMSK									
Site A (1)	55-09N 73-38E	IIIB		3	64				Operational
Site B (2) Possible	55-11N 73-33E	Undet							Undetermined
PERM									
Site A (1)	57-41N 56-11E	IIB	2			62			Operational
Site B (2)	57-44N 55-55E	IIB	2					62	Operational
Site C (3)	57-38N 56-07E	IIB	2				63		Operational
Site D (4)	57-42N 55-47E	IID	2					63	Operational
Site E (5)	57-45N 56-00E	IID	2		64				Operational
Site F (4)	57-41N 56-04E	IIIA		3	65				I C
PLESETSK									
Site 1 (1)	62-56N 40-27E	I	2		60				Operational
Site 2 (2)	62-56N 40-32E	I	1		60				Operational
Site 3 (3)	62-58N 40-41E	I	1			60			Operational
Site A (4)	62-59N 40-47E	IIA	2				61		Operational
Site B (5)	63-03N 40-57E	IIB	2			62			Operational
Site C (6)	64-01N 40-53E	IIIA		3	63				Operational
Site D (7)	62-54N 40-47E	IIC	2					61	Operational
Site E (7)	62-51N 40-45E	IIC	2					63	Operational
SHADRINSK									
Site A (1)	56-09N 63-51E	IIIA		3			63		Operational
Site B (2)	56-10N 64-02E	IIIA		3	64				Operational
Site C (3)	56-07N 63-57E	IIIA		3	65				I C
SVOBODNYY									
Site A (1)	51-55N 128-10E	IIB	2					62	Operational
Site B (1)	51-49N 128-19E	IIB	2					62	Operational
Site C (2)	51-53N 128-23E	IIB	2					62	Operational
Site D (4)	52-58N 128-07E	IID	2		64				Operational
Site E (6)	51-43N 128-00E	IID	2					63	Operational
Site F (-)	51-52N 128-13E	IID	2					63	Operational
Site G (7)	51-38N 127-58E	IIIA		3		65			I C
Site H (8)	52-03N 128-06E	IID	2		64				Operational
TEYKOVO									
Site A (1)	56-55N 40-27E	IIB	2			62			Operational
Site B (2)	56-56N 40-33E	IIB	2			62			Operational
Site C (3)	56-55N 40-17E	IIB	2		63				Operational
Site D (4)	56-59N 40-40E	IID	2					63	Operational
Site E (-)	56-49N 40-10E	IID	2					63	Operational
Site F (6)	56-55N 40-22E	IID	2			64			Operational
Site G (7)	56-47N 40-03E	IID	2				64		I C
TYUMEN									
Site A (3)	56-52N 65-34E	IIC	2					63	Operational
Site C (2)	56-51N 65-27E	IIC	2					63	Operational

TABLE 2. (Continued)

Location*	Coordinates	Type of Site	Number of Launchers		Estimated Quarter Site Operational				Estimated Status
			Soft	Hard	1st	2nd	3rd	4th	1 July 1964
YERKHNYAYA SALDA									
Site A (2)	58 09N 60 16E	IIB	2		62				Operational
Site B (3)	58 06N 60 21E	IIA	2					61	Operational
Site C (4)	58 10N 60 28E	IIA	2					61	Operational
Site D (4)	58 12N 60 34E	IIB	2			62			Operational
Site E (5)	58 14N 60 55E	IIB	2					62	Operational
Site F (7)	58 14N 60 41E	IIIA		3		63			Operational
Site G (8)	58 13N 60 49E	IIIA		3			63		Operational
Site H (9)	58 05N 60 13E	IID	2					61	Operational
Site I (10)	58 09N 60 32E	IID	2					61	Operational
YEDROVO									
Site A (2)	57 48N 33 36E	IIB	2				62		Operational
Site B (3)	57 48N 33 14E	IIB	2					62	Operational
Site C (4)	57 49N 33 08E	IID	2		64				Operational
Site D (4)	57 48N 33 28E	IID	2				63		Operational
Site E (8)	57 52N 33 18E	IIIA		3		63			Operational
Site F (6)	57 44N 33 06E	IID	2				63		Operational
Site G (5)	57 47N 33 02E	IID	2		64				Operational
Site H (9)	57 49N 33 08E	IIIA		3	64				Operational
Site I (4)	57 52N 33 27E								Undetermined
Undetermined 1									
YOSHKAR OLA									
Site A (3)	56 33N 48 09E	IIB	2			62			Operational
Site B (3)	56 33N 48 18E	IIB	2				62		Operational
Site C (2)	56 32N 48 27E	IIB	2		63				Operational
Site D (4)	56 31N 48 20E	IID	2				63		Operational
Site E (4)	56 34N 48 13E	IID	2					63	Operational
Site F (6)	56 36N 48 28E	IID	2					63	Operational
YURYA									
Site A (3)	59 10N 49 32E	IIA	2					61	Operational
Site B (4)	59 08N 49 40E	IIA	2					61	Operational
Site C (3)	59 13N 49 25E	IIB	2		62				Operational
Site D (4)	59 16N 49 22E	IIB	2			62			Operational
Site E (5)	59 21N 49 17E	IIIA		3				62	Operational
Site F (7)	59 21N 49 14E	IIB	2		63				Operational
Site G (6)	59 01N 49 51E	IIIA		3	64				Operational
Site H (8)	59 14N 49 47E	IID	2					63	Operational
Site I (11)	59 21N 49 25E	IID	2		64				Operational
Site J (9)	59 08N 49 15E	IID	2		64				Operational
Site K (10)	59 13N 49 18E	IIIA		3	65				Operational
SUB TOTALS		105	148	90					

TABLE 2. (Continued)

Location*	Coordinates	Type of Site	Number of Launchers		Estimated Quarter Site Operational				Estimated Status
			Soft	Hard	1st	2nd	3rd	4th	1 July 1964
TYURATAM									
Complex A1 (1)	45 55N 63 21E	I	1						Operational
A2	45 55N 63 21E	I	1						Operational
Complex B (2)	46 08N 63 34E	I Prototype	1						Operational
Complex C1 (3)	45 48N 63 39E	II Prototype	1						Operational
C2	45 48N 63 39E	II	1						Operational
C3	45 48N 63 39E	II	1						Operational
Complex D1 (4)	45 59N 63 57E	IIIA Prototype		3					Operational
D2 (9)	45 59N 63 57E	IIIA		3					Operational
Complex E1 (6)	45 58N 63 12E	IIC Prototype	1						Operational
E2	45 48N 63 12E	IIC	1						Operational
E3	45 48N 63 12E	IIC	1						Operational
Complex F (10)	46 02N 63 06E	IIIB Prototype		3					Operational
Complex G1 (7)	46 03N 62 56E	Undet	2						Operational
G2 (11)	46 03N 62 56E	Undet	2						Operational
Complex H (8)	45 59N 63 42E	Undet	2						Operational
TOTALS			116	163 + 99					

*TDI site designators are indicated in parentheses.

1 See Introduction, page 7.

TOP SECRET CHESS RUFF

TOP SECRET CHESS RUFF

TABLE 3. SUMMARY EVALUATION OF SOVIET MRBM IRBM DEPLOYMENT

LOCATION*	COORDINATES	TYPE	NO OF PADS LAUNCHERS	ESTIMATED CONSTR STATUS
AKHTYRKA Launch Complex				
AKHTYRKA 1	50-16-00N 34-50-15E	II	4	Complete
AKHTYRKA 2	50-22-00N 34-57-00E	II	4	Complete
AKTYUBINSK Launch Complex				
KARAKHOBDA	49-58-15N 56-51-15E	IV (IR)	3	Early
PETROVSKIY	50-00-30N 56-58-00E	IV (IR)	3	Mid
ALUKSNE Launch Complex				
LEJASCIEMS 1	57-21-00N 26-44-45E	II	4	Complete
RUSKI	57-25-15N 26-50-00E	II	4	Complete
LEJASCIEMS 2	57-13-00N 26-33-30E	IV (MR)	4	Complete
ANASTASYEVKA Launch Complex				
ANASTASYEVKA 1	48-34-15N 135-37-45E	II	4	Complete
ANASTASYEVKA 2	48-35-45N 135-41-00E	II	4	Complete
BALTA Launch Complex				
BALTA 1	48-01-45N 29-34-00E	II	4	Complete
BALTA 2	48-07-00N 29-34-30E	II	4	Complete
BARANO-ORENBURGSKOYE Launch Complex				
SOFIYE ALEKSEYEVSKOYE	44-16-15N 131-22-30E	I	4	Complete
BARANO-ORENBURGSKOYE	44-19-45N 131-30-15E	I	4	Complete
BAYRAM-ALI Launch Complex				
BAYRAM-ALI	37-47-45N 62-11-00E	III	4	Complete
BELOKOROVICHI Launch Complex				
OLEVSK 1	51-08-45N 28-03-15E	I	4	Complete
OLEVSK 2	51-10-30N 27-59-30E	I	4	Complete
RUDNYA ZLOTINSKAYA	51-03-30N 28-07-30E	IV (MR)	4	Complete
BELOMORSK Launch Complex				
RAMOYE	64-25-45N 34-18-15E	III	4	Complete
BORSHCHEV Launch Complex				
SKALA PODOLSKAYA 1	48-51-00N 26-08-30E	I	4	Complete
SKALA PODOLSKAYA 2	48-52-45N 26-02-30E	I	4	Complete
BREST Launch Complex				
BREST 1	51-48-45N 24-00-45E	II	4	Complete
BREST 2	51-51-45N 24-01-45E	II	4	Complete
BRODY Launch Complex				
BRODY 1	50-06-00N 25-12-15E	IV (MR)	4	Complete
BRODY 2	50-12-46N 25-05-00E	I	4	Complete
BERESTECHKO	50-20-00N 25-05-30E	I	4	Complete

TOP SECRET CHESS RUFF

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TABLE 3. (Continued)

LOCATION*	COORDINATES	TYPE	NO OF PADS LAUNCHERS	ESTIMATED CONSTR STATUS
BYKHOV Launch Complex				
SLEDYUKI	53-41-50N 30-20-30E	II	4	Complete
DERAZHNYA Launch Complex				
DERAZHNYA 1	49-21-00N 27-26-30E	II	4	Complete
DERAZHNYA 2	49-26-15N 27-29-00E	II	4	Complete
KHMELNITSKIY	49-24-45N 27-08-45E	IV (MR)	4	Complete
DISNA Launch Complex				
DISNA	55-35-15N 28-16-00E	I	4	Complete
ZELKI	55-35-45N 28-24-30E	I	4	Complete
BORKOVICHI	55-41-45N 28-27-00E	II	4	Complete
DOLINA Launch Complex				
DOLINA 1	49-03-30N 24-03-30E	I	4	Complete
DOLINA 2	49-06-15N 24-08-30E	I	4	Complete
BOLEKHOV	49-06-45N 23-51-15E	IV (MR)	4	Complete
DROGOBYCH Launch Complex				
MEDENITSA	49-22-15N 23-45-30E	I	4	Complete
DROGOBYCH	49-25-30N 23-34-45E	I	4	Complete
STRYY	49-16-45N 23-43-00E	IV (MR)	4	Complete
DYATLOVO Launch Complex				
DYATLOVO	53-32-45N 25-16-45E	I	4	Complete
BEREZOVKA	53-35-30N 25-17-30E	I	4	Complete
ZBLYANY	53-35-45N 25-27-30E	II	4	Complete
GELLI Launch Complex				
KAKASHURA	42-38-45N 47-27-00E	IV (IR)	3	Complete
GELLI	42-26-30N 47-28-30E	IV (IR)	3	Complete
PARAUL	42-47-30N 47-23-00E	IV (IR)	3	Complete
GOMEL Launch Complex				
BORKHOV 1	52-18-30N 30-42-45E	II	4	Complete
BORKHOV 2	52-24-45N 30-39-00E	II	4	Complete
GRANOV Launch Complex				
GRANOV 1	48-56-15N 29-30-15E	III	4	Complete
GRANOV 2	48-50-00N 29-28-45E	IV (IR)	3	Late
KALNIK	48-59-30N 29-21-45E	IV (IR)	3	Mid
GRESK Launch Complex				
GRESK 1	53-14-15N 27-42-30E	I	4	Complete
GRESK 2	53-17-00N 27-40-45E	I	4	Complete
URECHYE	53-11-00N 27-58-30E	II	4	Complete

TABLE 3. (Continued)

LOCATION*	COORDINATES	TYPE	NO OF PADS LAUNCHERS	ESTIMATED CONSTR STATUS
GROZNYY Launch Complex				
SUNZHENSKOYE	43-08-15N 44-54-15E	I	4	Complete
NESTEROVSKAYA	43-11-30N 44-57-00E	I	4	Complete
ACHKHOY-MARTAN	43-10-30N 45-10-30E	IV (MR)	4	Complete
GUSEV Launch Complex				
GUSEV 1	54-41-30N 22-05-00E	I	4	Complete
GUSEV 2	54-44-00N 22-03-30E	I	4	Complete
GVARDEYSK Launch Complex				
GVARDEYSK 1	54-40-30N 21-07-30E	I	4	Complete
GVARDEYSK 2	54-45-15N 21-09-15E	I	4	Complete
JELGAVA Launch Complex				
IECAVA 1	56-35-30N 24-04-00E	II	4	Complete
IECAVA 2	56-39-45N 24-07-30E	II	4	Complete
IECAVA 3	56-33-00N 24-20-30E	IV (MR)	4	Complete
JONAVA Launch Complex				
KARMELAVA	54-57-15N 24-05-45E	II	4	Complete
JONAVA	55-01-00N 24-14-15E	II	4	Complete
KAMENETS-PODOLSKIY Launch Complex				
KAMENETS-PODOLSKIY	48-51-15N 26-42-30E	II	4	Complete
DUNAYEVTSY	48-55-15N 26-59-00E	II	4	Complete
KIVERTSY Launch Complex				
KIVERTSY 1	50-53-15N 25-31-00E	I	4	Complete
KIVERTSY 2	50-56-00N 25-36-15E	I	4	Complete
TROSTYANETS	50-58-30N 25-39-30E	II	4	Complete
KONKOVICHI Launch Complex				
PETRIKOV	52-10-30N 28-34-45E	I	4	Complete
KONKOVICHI	52-15-30N 28-37-45E	I	4	Complete
KOROSTEN Launch Complex				
KOROSTEN 1	50-51-45N 28-18-15E	II	4	Complete
KOROSTEN 2	50-52-15N 28-31-00E	II	4	Complete
KOZHANOVICHI Launch Complex				
KOZHANOVICHI 1	52-10-15N 27-51-30E	I	4	Complete
KOZHANOVICHI 2	52-11-30N 27-48-00E	I	4	Complete
KRASKINO Launch Complex				
KRASKINO	42-44-00N 130-40-15E	II	4	Complete

TABLE 3. (Continued)

LOCATION*	COORDINATES	TYPE	NO OF PADS LAUNCHERS	ESTIMATED CONST STATUS
KRASNOZNAMENSK Launch Complex				
VIESVILLE	55-01-30N 22-23-00E	I	4	Complete
RAGNIT	55-01-15N 22-11-15E	I	4	Complete
KREMOVO Launch Complex				
KREMOVO (Probable)	44-01-24N 132-20-39E	I	4	Complete
LYALICHI (Probable)	44-02-30N 132-26-26E	I	4	Complete
KROLEVETS Launch Complex				
KROLEVETS 1	51-36-45N 33-29-30E	III	4	Complete
KROLEVETS 2	51-40-45N 33-31-15E	III	4	Complete
BEREZA	51-43-45N 33-43-45E	III	4	Complete
KURGANCHA Launch Complex				
KURGANCHA 1	39-37-45N 65-57-30E	I	4	Complete
KURGANCHA 2	39-37-30N 65-57-00E	I	4	Complete
TYM	39-35-15N 65-42-45E	IV (MR)	4	Complete
LEBEDIN Launch Complex				
LEBEDIN 1	50-33-00N 34-25-45E	III	4	Complete
LEBEDIN 2	50-35-45N 34-24-30E	III	4	Complete
LEBEDIN 3	50-38-00N 34-27-30E	III	4	Complete
LIDA Launch Complex				
LIDA 1	53-47-30N 25-20-30E	I	4	Complete
LIDA 2	53-57-15N 25-27-45E	I	4	Complete
LUTSK Launch Complex				
LUTSK 1	50-46-45N 25-03-00E	I	4	Complete
LUTSK 2	50-50-30N 25-04-15E	I	4	Complete
VLADIMIR-VOLYNSKIY	50-48-30N 24-42-30E	IV (MR)	4	Complete
MARINA GORKA Launch Complex				
MARINA GORKA	53-26-30N 27-45-30E	II	4	Complete
MAYKOP Launch Complex				
KURDZHIPSKAYA	44-31-45N 40-00-45E	II	4	Complete
SHIRVANSKAYA	44-25-30N 39-54-00E	IV (MR)	4	Complete
MOLOSKOVITSY Launch Complex				
MOLOSKOVITSY 1	59-28-45N 29-06-00E	II	4	Complete
MOLOSKOVITSY 2	59-29-30N 29-12-15E	II	4	Complete
GURLEVO	59-25-00N 28-53-15E	IV (MR)	4	Complete
MUKACHEVO Launch Complex				
MUKACHEVO 1	48-18-45N 22-30-45E	I	4	Complete
MUKACHEVO 2	48-19-30N 22-37-15E	I	4	Complete

TABLE 3. (Continued)

LOCATION*	COORDINATES	TYPE	NO OF PADS LAUNCHERS	ESTIMATED CONSTR STATUS
NADVORNAYA Launch Complex				
PARYSHCHE	48-37-45N 24-42-00E	I	4	Complete
NOVA VES	48-39-30N 24-48-15E	I	4	Complete
OTYNYA	48-47-30N 24-50-30E	IV (MR)	4	Complete
NIGRANDE Launch Complex				
NIGRANDE	56-31-00N 22-02-15E	III	4	Complete
SKRUNDA	56-35-30N 21-49-15E	IV (IR)	3	Complete
VAINODE	56-28-30N 21-50-15E	IV (IR)	3	Mid
NOVOSYSOYEVKA Launch Complex				
NOVOSYSOYEVKA 1	44-11-45N 133-26-15E	III	4	Complete
NOVOSYSOYEVKA 2	44-07-15N 133-28-30E	IV (IR)	3	Mid
NOVOSYSOYEVKA 3	44-07-30N 133-23-45E	IV (IR)	3	Early
OSTROG Launch Complex				
OSTROG 1	50-14-00N 26-43-15E	I	4	Complete
OSTROG 2	50-17-15N 26-41-00E	I	4	Complete
OSTROV Launch Complex				
ASANOVSHCHINA	57-31-45N 28-12-15E	I	4	Complete
SHEVELEVO	57-37-00N 28-12-15E	I	4	Complete
REDKINO	57-24-30N 28-26-00E	IV (MR)	4	Mid
PAPLAKA Launch Complex				
PAPLAKA 1	56-24-00N 21-17-30E	I	4	Complete
PAPLAKA 2	56-25-00N 21-16-45E	I	4	Complete
PERVOMAYSK Launch Complex				
KAMENNYY MOST	47-58-00N 30-53-15E	IV (IR)	3	Complete
SEMENOVKA 1	47-58-45N 30-59-00E	IV (IR)	3	Complete
SEMENOVKA 2	47-53-30N 30-58-45E	IV (IR)	3	Complete
PINSK Launch Complex				
IVANOVO	52-10-45N 25-41-15E	I	4	Complete
MOTOL	52-12-30N 25-44-30E	I	4	Complete
POLOTSK Launch Complex				
POLOTSK 1	55-22-30N 28-44-30E	II	4	Complete
POLOTSK 2	55-24-15N 28-33-45E	II	4	Complete
POSTAVY Launch Complex				
POSTAVY 1	55-09-45N 26-53-45E	II	4	Complete
KOZYANY	55-20-30N 26-51-30E	II	4	Complete
POSTAVY 2	55-06-15N 27-00-15E	IV (MR)	4	Mid

TABLE 3. (Continued)

LOCATION*	COORDINATES	TYPE	NO OF PADS LAUNCHERS	ESTIMATED CONSTR STATUS
PRUZHANY Launch Complex				
PRUZHANY 1	52-30-30N 24-08-45E	II	4	Complete
PRUZHANY 2	52-33-30N 24-06-15E	II	4	Complete
RAKVERE Launch Complex				
SIMUNA	59-08-45N 26-26-45E	II	4	Complete
VAIKE MAARJA	59-11-15N 26-20-45E	II	4	Complete
RISTI Launch Complex				
RISTI 1	59-04-00N 24-04-30E	I	4	Complete
RISTI 2	59-07-45N 24-06-45E	I	4	Complete
ROZHDESTVENKA Launch Complex				
ROZHDESTVENKA	45-47-15N 133-43-30E	II	4	Complete
RUZHANY Launch Complex				
KRUPA 1	52-47-45N 24-42-30E	II	4	Complete
KRUPA 2	52-49-15N 24-45-30E	II	4	Complete
SARY OZEK Launch Complex				
KARA BABAU 1	44-32-00N 77-46-15E	III	4	Complete
KARA BABAU 2	44-31-00N 77-58-45E	IV (IR)	3	Complete
KARA BABAU 3	44-30-15N 77-41-15E	IV (IR)	3	Late
SATEIKIAI Launch Complex				
SALANTAI 1	55-59-45N 21-38-15E	I	4	Complete
SALANTAI 2	56-02-15N 21-41-30E	I	4	Complete
ZEMAICIU KALVARIJA	56-01-45N 21-54-30E	IV (MR)	4	Complete
SIMFEROPOL Launch Complex				
MAZANKA	44-53-45N 34-20-00E	I	4	Complete
BALKI	44-57-00N 34-26-00E	I	4	Complete
SLONIM Launch Complex				
BYTEN 1	52-52-30N 25-21-30E	I	4	Complete
BYTEN 2	52-55-45N 25-22-15E	I	4	Complete
SMORGON Launch Complex				
SMORGON 1	54-31-45N 26-17-30E	III	4	Complete
SMORGON 2	54-26-00N 26-18-30E	IV (IR)	3	Late
SMORGON 3	54-36-15N 26-22-30E	III	4	Complete
SOKAL Launch Complex				
SOKAL 1	50-22-45N 24-18-15E	I	4	Complete
SOKAL 2	50-27-15N 24-20-00E	I	4	Complete
SOKAL 3	50-20-15N 24-26-15E	IV (MR)	4	Complete
SOVETSK Launch Complex				
SLAVSK 1	54-59-15N 21-36-30E	I	4	Complete
SLAVSK 2	54-59-45N 21-28-30E	I	4	Complete

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TABLE 3. (Continued)

LOCATION*	COORDINATES	TYPE	NO OF PADS LAUNCHERS	ESTIMATED CONSTR STATUS
SUCHAN Launch Complex				
NOVITSKOYE	43-01-45N 133-17-00E	I	4	Complete
SEVERNYY SUCHAN	43-10-00N 133-20-05E	I	4	Complete
TAURAGE Launch Complex				
TAURAGE 1	55-10-15N 22-20-30E	I	4	Complete
TAURAGE 3	55-05-00N 22-20-00E	I	4	Complete
TAYBOLA Launch Complex				
TAYBOLA 1	68-28-00N 33-15-30E	IV (IR)	3	Complete
TAYBOLA 2	68-30-30N 33-23-15E	IV (IR)	3	Complete
TAYBOLA 3	68-26-00N 33-29-15E	IV (IR)	3	Early
TORVA Launch Complex				
TORVA 1	57-56-00N 26-04-00E	I	4	Complete
TORVA 2	57-59-15N 26-05-00E	I	4	Complete
TSIRGULINA	57-49-45N 26-12-30E	IV (MR)	4	Complete
UGOLNYY Launch Complex				
UGOLNYY	64-47-32N 177-56-15E	II	4	Complete
UKMERGE Launch Complex				
VEPRIAI	55-07-45N 24-38-30E	I	4	Complete
UKMERGE	55-11-00N 24-42-30E	I	4	Complete
UMAN Launch Complex				
MOLODETSKOYE	48-53-45N 30-27-45E	I	4	Complete
MANKOVKA	48-57-45N 30-23-45E	I	4	Complete
KISHENTSY	49-09-15N 30-13-45E	IV (MR)	4	Complete
USOVO Launch Complex				
OVRUCH 1	51-17-15N 28-16-15E	I	4	Complete
OVRUCH 2	51-18-30N 28-10-30E	I	4	Complete
LIPNIKI	51-12-15N 28-26-30E	II	4	Complete
UZHGOROD Launch Complex				
UZHGOROD	48-33-30N 22-13-15E	II	4	Complete
VORU Launch Complex				
VORU 1	57-46-00N 26-47-15E	II	4	Complete
VORU 2	57-49-00N 26-50-30E	II	4	Complete
VSELYUB Launch Complex				
VSELYUB 1	53-45-45N 25-43-00E	I	4	Complete
VSELYUB 2	53-48-00N 25-46-45E	I	4	Complete
YELSK Launch Complex				
YELSK 1	51-42-30N 29-12-30E	I	4	Complete
YELSK 2	51-47-15N 29-18-15E	I	4	Complete

TOP SECRET CHESS RUFF

TABLE 3. (Continued)

LOCATION*	COORDINATES	TYPE	NO OF PADS/ LAUNCHERS	ESTIMATED CONSTR STATUS
ZAGARE Launch Complex				
ZAGARE 1	56-23-15N 23-19-15E	I	4	Complete
ZAGARE 2	56-29-00N 23-20-45E	I	4	Complete
LIELELEJA	56-24-30N 23-36-45E	IV (MR)	4	Complete
ZHITOMIR Launch Complex				
ZHITOMIR 1	50-04-45N 28-15-45E	II	4	Complete
ZHITOMIR 2	50-10-00N 28-16-15E	II	4	Complete
BERDICHEV	50-05-30N 28-22-00E	II	4	Complete
ZHMERINKA Launch Complex				
GNIVAN	49-09-00N 28-11-45E	II	4	Complete
ZHMERINKA	49-10-15N 28-05-00E	II	4	Complete
VINNITSA	49-17-30N 28-29-15E	IV (MR)	4	Complete
ZHURAVKA Launch Complex				
ZHURAVKA	54-36-30N 76-39-45E	III	4	Complete
ZNAMENSK Launch Complex				
ZNAMENSK 1	54-32-45N 21-11-15E	I	4	Complete
ZNAMENSK 2	54-35-15N 21-07-30E	I	4	Complete

*TDI site designators have been adopted for MRBM-IRBM Launch Sites.

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